NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

U.S.-BRAZIL SECURITY COOPERATION AND THE CHALLENGE OF TECHNOLOGY TRANSFER

by

Robert J. Storer

March 2014

Thesis Advisor:	Thomas Bruneau
Second Reader:	Harold Trinkunas

Approved for public release; distribution unlimited

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	March 2014	Master's Thesis

4. TITLE AND SUBTITLE
U.S.-BRAZIL SECURITY COOPERATION AND THE CHALLENGE OF TECHNOLOGY TRANSFER

5. FUNDING NUMBERS

6. AUTHOR(S) Robert J. Storer

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES)
N/A

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB protocol number ____N/A____.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

12b. DISTRIBUTION CODE
A

13. ABSTRACT (maximum 200 words)

Since 2010, the United States and Brazil have made efforts to expand security cooperation between the two countries with the signing of a defense cooperation agreement, a general security of military information agreement, and the establishment of a defense cooperation dialogue. Despite these positive steps, the issue of technology transfer threatens to impede greater U.S.-Brazil security cooperation.

Brazilian defense policy identifies technology transfer as a key component of its national defense, and there is a perception among many Brazilian officials that the United States is reticent to transfer defense technology to Brazil. This thesis includes an in-depth review of each country's policies and strategies related to arms and defense technology transfers, as well as case studies on cooperation (or lack thereof) between the U.S. and Brazil in two areas—nuclear and aviation—to understand what drives this belief among Brazilian policymakers.

The thesis concludes that historical events in its relations with Washington make it difficult for Brasília to accept more recent U.S. efforts to enhance security cooperation and facilitate technology transfer on their face, while these same efforts cause U.S. policymakers to discount the importance of past indifference towards or overt efforts to block Brazil in obtaining certain technologies.

14. SUBJECT TERMS
Brazil, U.S. foreign policy, Brazilian foreign policy, Brazilian defense policy, security cooperation, security assistance, arms transfers, technology transfer

15. NUMBER OF PAGES
101

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UU

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution unlimited

U.S.-BRAZIL SECURITY COOPERATION AND THE CHALLENGE OF TECHNOLOGY TRANSFER

Robert J. Storer
Lieutenant Commander, United States Navy
B.A., Florida Atlantic University, 2002
M.B.A., Arizona State University, 2007

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(WESTERN HEMISPHERE)**

from the

**NAVAL POSTGRADUATE SCHOOL
March 2014**

Author: Robert J. Storer

Approved by: Thomas Bruneau
Thesis Advisor

Harold Trinkunas
Second Reader

Mohammed Hafez
Chair, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Since 2010, the United States and Brazil have made efforts to expand security cooperation between the two countries with the signing of a defense cooperation agreement, a general security of military information agreement, and the establishment of a defense cooperation dialogue. Despite these positive steps, the issue of technology transfer threatens to impede greater U.S.-Brazil security cooperation.

Brazilian defense policy identifies technology transfer as a key component of its national defense, and there is a perception among many Brazilian officials that the United States is reticent to transfer defense technology to Brazil. This thesis includes an in-depth review of each country's policies and strategies related to arms and defense technology transfers, as well as case studies on cooperation (or lack thereof) between the U.S. and Brazil in two areas—nuclear and aviation—to understand what drives this belief among Brazilian policymakers.

The thesis concludes that historical events in its relations with Washington make it difficult for Brasília to accept more recent U.S. efforts to enhance security cooperation and facilitate technology transfer on their face, while these same efforts cause U.S. policymakers to discount the importance of past indifference towards or overt efforts to block Brazil in obtaining certain technologies.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I. INTRODUCTION 1
A. MAJOR RESEARCH QUESTION 1
B. IMPORTANCE 1
C. PROBLEM AND HYPOTHESES 4
D. LITERATURE REVIEW 7
E. METHODS AND THESIS OVERVIEW 15

II. U.S. POLICY 17
A. DEFINITIONS AND CONCEPTS 17
1. Security Cooperation and Security Assistance 17
2. Foreign Military Sales and Direct Commercial Sales 18
3. Technology Transfer 20
B. U.S. EXPORT CONTROL SYSTEM 23
1. Arms Export Control Act and International Traffic in Arms Regulations 25
2. Export Administration Act and Export Administration Regulations 27
3. Multilateral Agreements 29
a. Wassenaar Arrangement 29
b. Missile Technology Control Regime 30
c. Nuclear Suppliers Group 30
d. Australia Group 30
4. DOD's Role in Export Control and Technology Transfer ... 31
5. Criticism of the U.S. Export Control System 32
C. U.S. SECURITY ASSISTANCE AND ARMS TRANSFER POLICIES 33
1. The Truman Doctrine 34
2. The Eisenhower Doctrine and the Kennedy-Johnson Era . 35
3. Nixon Doctrine 35
4. Ford and Carter Administrations 36
5. Reagan Administration 38
6. Clinton Administration 38
7. Obama Administration 40
D. CHAPTER SUMMARY 40

III. BRAZILIAN POLICY 43
A. BACKGROUND 43
B. NATIONAL DEFENSE STRATEGY 47
1. Criticism of the National Defense Strategy 50
C. OFFSET POLICY 52
D. BRAZILIAN DEFENSE INDUSTRY AND GRAND STRATEGY 54
E. CHAPTER SUMMARY 58

IV. KEY UNRESOLVED ISSUES IN US-BRAZIL SECURITY COOPERATION AND TECHNOLOGY TRANSFER 61
A. NUCLEAR 61
B. AVIATION 66
C. CONCLUSION 69
LIST OF REFERENCES 75
INITIAL DISTRIBUTION LIST 83

LIST OF FIGURES

Figure 1. U.S. Military Sales to Brazil 2007–2012 3
Figure 2. Approvals and Denials of U.S. Military Sales to Brazil 2007–2012..... 4
Figure 3. U.S. Export Control System..... 24

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1. Brazil's Ranking Among the World's Major Arms Exporters 56

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AECA	Arms Export Control Act
AG	Australia Group
BIS	Bureau of Industry and Security
CCL	Commerce Control List
CFR	Council on Foreign Relations
DCA	defense cooperation agreement
DCD	defense cooperation dialogue
DCS	direct commercial sales
DDTC	Directorate of Defense Trade Controls
DOC	Department of Commerce
DOD	Department of Defense
DOS	Department of State
DTSA	Defense Technology Security Administration
EAA	Export Administration Act
EAR	Export Administration Regulations
ECCN	export control classification number
END	Brazilian National Defense Strategy
FMS	foreign military sales
GDP	gross domestic product
GSOMIA	general security of military information agreement
ITAR	International Traffic in Arms Regulations
MAP	Military Assistance Program
MoD	Ministry of Defense
MTCR	Missile Technology Control Regime
NATO	North Atlantic Treaty Organization
NPT	Nuclear Non-Proliferation Treaty
NSA	National Security Agency
NSG	Nuclear Suppliers Group
NSS	National Security Strategy
QDR	Quadrennial Defense Review

SA	Security assistance
UN	United Nations
UNSC	United Nations Security Council
USML	U.S. Munitions List
WA	Wassenaar Arrrangement

ACKNOWLEDGMENTS

Above all, I would like to thank my wonderful wife, Kathy, and my three beautiful girls, Nickol, Erin, and Maia, for their loving support during the process of writing this thesis. Without their love, encouragement, and prayers, I'm not sure how I would have finished. I love and appreciate them more then they will ever know.

I would also like to thank my good friend John Burton for his support during this process. His insights on the creative process made a huge difference and truly accelerated my progress in completing this work. I'm grateful that he was there as a sounding board and someone I could complain to about my struggles and rejoice with in my successes.

Finally, I thank professors Thomas Bruneau and Harold Trinkunas for serving as my advisors on this thesis. Their assistance was vital in helping select a relevant topic, and their expertise and guidance kept me pointed in the right direction throughout the process.

I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

Since 2010, the United States and Brazil have made efforts to expand security cooperation between the two countries with the signing of a defense cooperation agreement (DCA), a general security of military information agreement (GSOMIA), and the establishment of a defense cooperation dialogue (DCD), based on the DCA. Despite these positive steps, the issue of technology transfer threatens to impede the progress of U.S.-Brazil security cooperation. Current policy identifies technology transfer as a key component of Brazil's national defense, and there is a perception among many Brazilian officials that the United States is reticent to transfer defense technology to Brazil. What is fueling the perception that the United States is unwilling to transfer technology to Brazil? Is U.S. technology transfer policy impeding greater security cooperation with Brazil, or is this simply a case of misperception on the part of the Brazilians?

B. IMPORTANCE

It is nearly impossible to find a national-level U.S. policy document bereft of at least one of these terms: partnership, engagement, and cooperation. U.S. policy makers and military leaders alike clearly believe that our ability to build and maintain strong partnerships around the world is crucial to our national security. One country identified by name as a key partner for the future is Brazil. Indeed, the 2010 *National Security Strategy* (NSS) states, "We are working to build deeper and more effective partnerships with . . . increasingly influential nations such as Brazil . . . so that we can cooperate on issues of bilateral and global concern."[1] Likewise, the 2010 *Quadrennial Defense Review* (QDR) states, "The United States remains committed to building a strong partnership with Brazil—the

[1] White House, *National Security Strategy* (Washington, DC: White House, 2010), 3.

hemisphere's second largest economy and second most populous democracy—on all regional issues and global security concerns."[2]

An avenue for building and maintaining these partnerships is through security cooperation programs. Among other things, these programs: "allow the transfer of defense articles and services to international organizations and friendly foreign governments via sales, grants, leases, or loans to help friendly nations and allies deter and defend against aggression, promote the sharing of common defense burdens and help foster regional stability."[3] The 2008 *Brazilian National Defense Strategy* identifies the aforementioned form of security cooperation, called security assistance, with the inclusion of technology transfer, as a key condition for potential defense partners. The Brazil-U.S. Business Council notes, however, that there "is a widespread perception in Brazil that the United States is unwilling to transfer technology as part of its commitment to deepen this partnership."[4] Indicative of this sentiment is a Brazilian diplomat's 2008 statement to U.S. defense personnel that "the United States has carried out a technological embargo against Brazil for the last 20 years."[5]

Many U.S. officials struggle to comprehend this sentiment based on their view of the facts. As depicted in Figure 1, the number of cases of U.S. sales of military products, technology, and services to Brazil rose from 846 in 2007 to 2,393 in 2012.[6] Furthermore, as shown in Figure 2, "the United States denied only 17 of the 6,900 defense-related export license applications for Brazil

---

[2] Department of Defense, *Quadrennial Defense Review* (Washington, DC: Department of Defense, 2010), 62.

[3] Defense Security Cooperation Agency, "Security Assistance," https://acc.dau.mil/CommunityBrowser.aspx?id=32437.

[4] Brazil-U.S. Business Council, "The U.S.-Brazil Defense Partnership: Moving Toward Closer Cooperation" (Washington, DC: U.S. Chamber of Commerce, 2013), 3, http://www.brazilcouncil.org/sites/default/files/BUSBC_DefenseReport.PDF.

[5] E. Richard Downes, "Trust, Engagement, and Technology Transfer: Underpinnings for U.S.-Brazil Defense Cooperation," *Strategic Forum No. 279* (Washington, DC: National Defense University, 2012), 10, www.ndu.edu/press/lib/pdf/StrForum/SF-279.pdf.

[6] Brazil-U.S. Business Council, "The U.S.-Brazil Defense Partnership," 4.

between 2007 and 2011, a disapproval rate of only 0.2 percent."[7] Additionally, the United States' bid to sell F-18s to the Brazilian Air Force includes robust technology transfer. Finally, the first meeting of the DCD in mid-2012 identified the transfer of science, innovation, and technology as one of six priorities for Brazil-U.S. defense cooperation activities.[8]

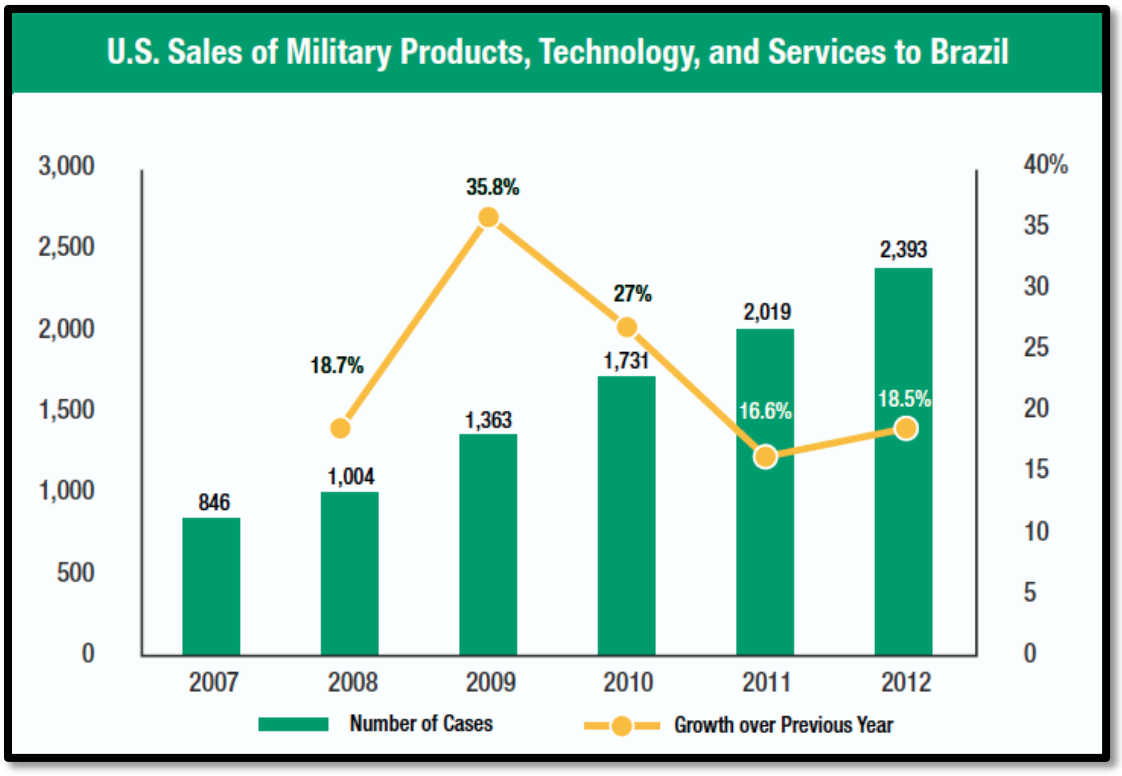

Figure 1. U.S. Military Sales to Brazil 2007–2012[9]

[7] Downes, "Trust, Engagement, and Technology Transfer," 12.

[8] Ibid., 14.

[9] Brazil-U.S. Business Council, "The U.S.-Brazil Defense Partnership," 4.

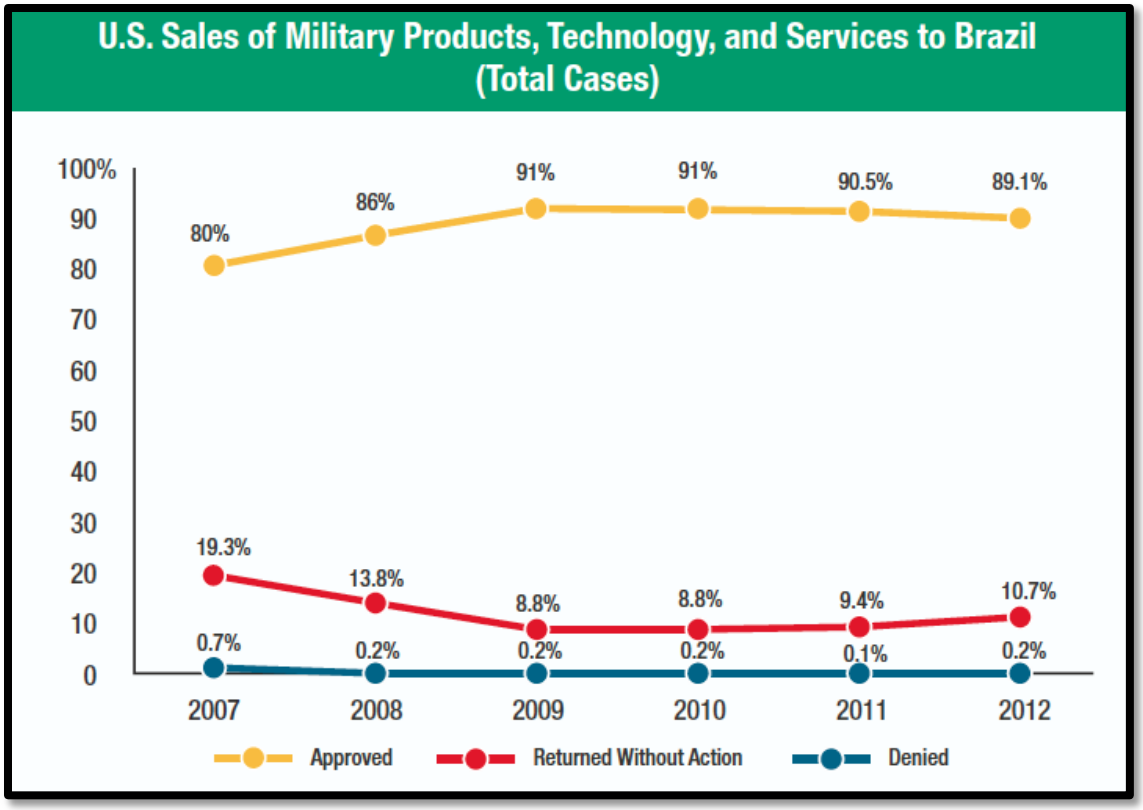

Figure 2. Approvals and Denials of U.S. Military Sales to Brazil 2007–2012[10]

Thus, there appears to be a disconnection between perception and reality in the Brazil-U.S. bilateral security relationship, particularly as it pertains to the transfer of defense technology. To achieve the strategic partnership the United States seeks with Brazil, it is necessary to discover the source of this disconnect and develop strategies and policies to overcome it.

C. PROBLEM AND HYPOTHESES

The preceding discussion leads to the formulation of the following problem this thesis will address: uncovering the reality regarding the issue of technology transfer in the Brazil-U.S. relationship. Thus rather than test a theory, this thesis will essentially be a fact-finding mission to understand the nature of the challenge of technology transfer between the United States and Brazil. Policymakers on

[10] Ibid., 5.

both sides of this debate could use the findings presented to evaluate, and potentially adjust, their policies in order to enhance the bilateral security relationship.

There are three potential hypotheses that can be formulated to explain the disagreement or disconnect between the United States and Brazil over the issue of technology transfer. The first hypothesis is that U.S. policymakers are correct, that the United States is more than willing to transfer significant technology to Brazil, and that the issue is simply a Brazilian ideation. The numbers presented in preceding paragraphs regarding approval rates of defense-related export licenses and the details of the United States' F-18 proposal to Brazil seem to support this hypothesis, but perhaps the denied applications are high visibility, high impact applications, so the small number belies the importance attached to them.

The second hypothesis is that Brazilian policymakers are correct, that the United States is unwilling to readily transfer defense-related technology to Brazil, and that it carefully keeps the most advanced technology from being transferred. The 2010 Department of Defense's (DOD) QDR lends credence to this hypothesis. Regarding security assistance and export controls it states:

> America's security assistance efforts remain constrained by a complex patchwork of authorities, persistent shortfalls in resources, unwieldy processes, and a limited ability to sustain long-term efforts. . . . Today's export control system is a relic of the Cold War and must be adapted to address current threats. The current system impedes cooperation, technology sharing, and interoperability with allies and partners, hindering U.S. industrial competitiveness.[11]

The third hypothesis is that both sides are partially wrong due to misperception of the other's intentions and actions. Robert Jervis's writings on the importance of perceptions in international politics are particularly instructive in this area. Jervis argues that actors in international politics are subject to a myriad

[11] Department of Defense, *Quadrennial Defense Review*, xiv–xv.

of biases that cloud their judgment and lead to misperceptions about the intentions and actions of other actors. He offers several insights on misperception, two of which are particularly useful to the current discussion. First, he posits that what political actors learn from key historical events largely determines the way they interpret new information. This can be problematic because, as he writes, "By making accessible insights derived from previous events, analogies provide a useful shortcut to rationality. But they also obscure aspects of the present case that are different from the past one."[12] Thus, actors will often struggle to assimilate new information that does not support their prevailing view, and may either ignore it or manipulate it to fit their established beliefs. Second, he posits that events are more likely to shape present perceptions if they occurred in the "recent rather than the remote past."[13] Both of these aspects of misperception are likely at play in the Brazil-U.S. security relationship.[14]

On the Brazilian side, historical events in its relations with the United States may make it difficult to accept more recent U.S. efforts to enhance security cooperation and facilitate technology transfer on their face, as will be outlined further in the following section. On the U.S. side, the salience of its efforts in the present to enhance its security relationship with Brazil may at the same time be causing its policymakers to discount the importance of past indifference towards or overt efforts to block Brazil in obtaining certain technologies. This third hypothesis—that of misperception on behalf of both the United States and Brazil—appears to be the most likely explanation for the challenge of greater Brazil-U.S. security cooperation vis-à-vis technology transfer.

---

[12] Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976), 220.

[13] Robert Jervis, "Hypotheses on Misperception," *World Politics* 20, no. 3 (1968): 472.

[14] Ibid.; Jervis, *Perception and Misperception in International Politics*, 220.

D. LITERATURE REVIEW

Paramount to the current discussion is an understanding of the nature of Brazil-U.S. relations, the sources of friction in these relations, and how the issue of technology transfer fits in to these relations. As a global power and the historically dominant power in the Western Hemisphere—both economically and militarily—the United States is clearly important for Brazil. With Brazil's emergence as a global economic power, a regional leader within South America, and its well-documented aspirations to become a leader within a multipolar world order, it too is of ever increasing importance to the United States. In its task force report "Global Brazil and U.S.-Brazil Relations," the Council on Foreign Relations (CFR) concludes:

> Brazil matters not just regionally but globally. Its decisions and actions will affect the world's economy, environment, and energy future as well as prospects for diplomacy and stability. Brazil is on the short list of countries that will most shape the twenty-first century. U.S. and Brazilian foreign policy must adjust accordingly.[15]

The second sentence of this declaration could just as easily be applied to the United States as to Brazil. While this convergence in the importance of both countries in the world and recognition by U.S. analysts and policymakers of Brazil's growing importance have led to efforts on both sides to find common ground and areas for closer cooperation, they have not necessarily translated into stronger relations between the two countries.

A simple examination of the titles of essays and books on Brazil-U.S. relations reveal a common theme in the literature and provide a cursory insight into the relationship. Examples include: *The United States and Brazil: A Long*

[15] Council on Foreign Relations, "Global Brazil and U.S.-Brazil Relations," July 2011, ix, http://www.cfr.org/brazil/global-brazil-us-brazil-relations/p25407?cid=emc-BrazilTF_pressrelease-taskforce-07_13_11.

Road of Unmet Expectations;[16] "Brazil: Ally or Rival?,"[17] "U.S. and Brazil: Together and Apart;"[18] "Inter-American Discord: Brazil and the United States;"[19] and "The Reluctant Partner."[20] Mônica Hirst's conclusion in *The United States and Brazil: A Long Road of Unmet Expectations* is perhaps the most succinct description of Brazil-U.S. relations that applies to historical relations, has relevancy to current relations, and captures the unifying theme of the literature. She writes:

> Brazil and the United States have shared a notion of 'constrained discrepancy' which, while it has always avoided open confrontation, has resulted in frustrations on both sides that have long dominated their relations . . . even though U.S.-Brazil relations have become more complex and diverse, the relationship tends to repeat the same pattern of (mis)understanding and mutual frustration.[21]

Hirst outlines what she sees as four distinct phases or periods in Brazil-U.S. relations: 1) alliance (The First Republic to the early 1940s); 2) alignment (1942–1977); 3) autonomy (1977–1990); and 4) adjustment (1990–2003).[22] The first two periods are perhaps of greatest importance to the present discussion. She characterizes the first period as one in which the two countries formed a "special relationship" and essentially both sides met each other's expectations. This special relationship or "unwritten alliance" ultimately led Brazil to side with the Allies in WWII, deploy troops to fight on the European continent, allow for U.S. basing in Natal during the conflict, and believe, as General Estevão Leitão

---

[16] Monica Hirst and Andrew Hurrell, *The United States and Brazil: A Long Road of Unmet Expectations* (New York: Routledge, 2005).

[17] Russell Crandall and Britta Crandall, "Brazil: Ally or Rival?" in *The United States and Latin America after the Cold War* (New York: Cambridge University Press, 2008), 145–161.

[18] Ted Piccone, "U.S. and Brazil: Together and Apart," The National Interest, 9 April 2012, http://nationalinterest.org/commentary/us-brazil-together-apart-6746.

[19] Peter Hakim, "Inter-American Discord: Brazil and the United States," *IPEA Boletim de Economia e Política Internacional* (October 2012), http://www.thedialogue.org/page.cfm?pageID=32&pubID=3115.

[20] Peter Hakim, "The Reluctant Partner," *Foreign Affairs* 83, no. 1 (2004), 114–123, http://www.jstor.org/stable/20033833.

[21] Hirst and Hurrell, *The United States and Brazil*, xvii; 67.

[22] Ibid., 1–18.

de Carvalho declared in 1942, that it and the United States had formed a "brotherhood of arms between our two armies, on whose shoulders rests the main responsibility of the defense of peace on our continent."[23]

The special relationship, however, did not evolve as the Brazilians in particular expected, and thus the alignment period was key in the development of the perceptions and mistrust that have plagued Brazil-U.S. relations. Both Sonny B. Davis in "Brazil-United States Military Relations in the Early Post-World War II Era" and Andrew Hurrell in the concluding chapter of *The United States and Brazil: A Long Road of Unmet Expectations* note that Brazil expected its support for the allies in WWII and U.S. policies in the ensuing Cold War would bring "modernization with American economic and military assistance" and make it "become a full partner and become preeminent in Latin America."[24] The United States on the other hand expected a continuation of the status quo from the alliance period, with Brazil "bandwagoning" with U.S. initiatives and accepting a subordinate role in the hemisphere.[25]

Thus while cooperation continued over the alignment period, the special relationship gradually eroded. Brazil politically supported the U.S. effort in Korea, but because the U.S. did not provide the massive aid it sought for its development, it ultimately did not supply troops for the war.[26] In turn, while the United States initially supported the Brazilian military junta that seized power in 1964 because of its renewed support for U.S. initiatives and economic liberalization, the Carter administration targeted the regime for its human rights record and nuclear development efforts.[27] The Carter regime's pressure led to an

---

[23] Ibid., 1–5; Sonny B. Davis, "Brazil-United States Military Relations in the Early Post-World War II Era," *Diálogos* 6, no. 1 (2002), 14, http://www.uem.br/dialogos/index.php?journal=ojs&page=article&op=view&path[]=233.

[24] Davis, "Brazil-United States Military Relations," 14; Hirst and Hurrell, *The United States and Brazil*, 94–101.

[25] Hirst and Hurrell, *The United States and Brazil*, 94–101.

[26] Davis, "Brazil-United States Military Relations," 23–28.

[27] Hirst and Hurrell, *The United States and Brazil*; 7–8.

anti-American reaction from various circles in Brazilian society, the cancellation of the 1952 military accord between the two countries, and the commencement of a significantly more strained period of relations, the autonomy phase.[28] Hirst and Hurrell's book—along with Davis's article—provides an important historical backdrop for understanding the challenges that face current Brazil-U.S. relations and the overall nature of the relationship.

Several authors have written on the current sources of friction in Brazil-U.S. relations. Russell and Britta Crandall, in "Brazil: Ally or Rival?," correctly identify the most important elements of the relationship: economic/commercial issues and security/military issues. They argue that Brazilian foreign policy is primarily economically driven, while Brazilians feel U.S. foreign policy is based on threats rather than opportunities, which has led Washington to traditionally neglect Brazil's importance and resulted in friction between the two sides over economic issues such as the Free Trade Agreement of the Americas.[29]

Along the same vein, Peter Hakim in "Inter-American Discord: Brazil and the United States" and Ted Piccone in "U.S. and Brazil: Together and Apart" identify economic issues as key points of contention between the United States and Brazil. They identify issues such as U.S. ethanol tariffs and cotton subsidies as sources of frustration on the Brazilian side, while import restrictions and weak intellectual property protections in Brazil frustrate the United States.[30] Hakim notes that despite their many shared economic interests, the two countries have not signed a major economic agreement in over twenty years.[31] Furthermore, Hakim and Hirst note that Brazil is increasingly looking inward to the region via vehicles such as MERCOSUR and outside the hemisphere to China and the EU

[28] Ibid. 8–9; Davis, "Brazil-United States Military Relations," 29.

[29] Crandall and Crandall, "Brazil: Ally or Rival?" 145–161.

[30] Hakim, "Inter-American Discord: Brazil and the United States," 90–98, http://www.thedialogue.org/page.cfm?pageID=32&pubID=3115; Piccone, "U.S. and Brazil: Together and Apart."

[31] Hakim, "Inter-American Discord," 91.

for economic opportunities due to its frustrations with the United States.[32] Clearly there are significant challenges in the Brazil-U.S. economic relationship.

Where Crandall and Crandall posit that greater potential exists for progress in cooperation on security issues, other analysts note that there are several sources of friction in this area as well. Three issues stand out in the literature: U.S. military activities in the hemisphere, Brazil's bid for a permanent seat on the United Nations Security Council (UNSC), and Brazil's stance on nuclear issues. In *Brazil on the Rise,* Larry Rohter notes that among many circles in Brazil there exists a sort of national paranoia over the Amazon region and its resources stemming from Brazilian recognition that the country in many ways lacks the capacity to fully oversee or protect the region.[33] This includes official reports indicating the U.S.-based environmental groups are simply tools of the U.S. government to extend its influence in the region and that the U.S. military has plans to take over the region.[34] This concern extends to a preoccupation over protecting other natural resources, such as Brazil's recently discovered oil deposits, as indicated by Brazilian participants at a conference on regional security in 2012.[35]

These concerns, thus, cause friction when the United States increases its military activities in the region without consulting Brazil. For example, Kellie Meiman notes that in 2008, the United States re-established the 4th Fleet without consulting Brazil, drawing sharp criticism from President Lula and the Brazilian Congress.[36] In 2009, when the United States and Colombia announced a new

---

[32] Ibid.," 5; Hirst and Hurrell, *The United States and Brazil*; 17–38.

[33] Larry Rohter, *Brazil on the Rise: The Story of a Country Transformed* (New York, NY: Palgrave Macmillan, 2010), 205–207.

[34] Ibid.

[35] Harold Trinkunas and Thomas Bruneau, *U.S.-Brazil Workshop on Global and Regional Security,* PASCC Report No. 2012 018 (Monterey, CA: Project on Advanced Systems and Concepts for Countering WMD, Naval Postgraduate School, 2012), 7, www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA574567.

[36] Kellie Meiman and David Rothkopf, "The United States and Brazil: Two perspectives on dealing with partnership and rivalry," Center for American Progress, March 2009, 8, http://www.americanprogress.org/wp-content/uploads/issues/2009/03/pdf/brazil.pdf.

military accord that included a provision for U.S. basing in Colombia, Hakim notes that Brazil led the charge in the region to block the agreement.[37]

The issue over permanent membership in the UNSC for Brazil is a longstanding one in the bilateral relationship. The historical roots of this source of friction date back to WWI, when Brazil felt that its role as the only Latin American nation to provide troops to the war merited a permanent seat on the council of the League of Nations. Due to its denial of a permanent seat on the council, coupled with its observation that that the league ultimately did not represent a new world order in which its voice would be equal with that of European powers, Brazil withdrew from the League in 1926.[38] The issue arose again following WWII, when Brazil expected its support for the Allies would elevate its power and earn it a permanent seat on the council. Patrick Stewart notes that President Franklin Roosevelt actually pushed for Brazil to gain permanent membership on the council following the war.[39] However, debates over its status as a world power and having a Portuguese-speaking country represent Latin America on the UNSC led the Soviet Union and Britain to push in a different direction, ultimately granting a permanent seat to France.[40] As Arturo Sotomayor notes, "Brazil has always regarded its exclusion from a permanent seat as a snub to be redressed."[41]

Over the years, Brazil has been a frequent rotating member of the council and many U.S. administrations have hinted at supporting its bid for permanent membership, but its use of the forum to counter U.S. initiatives has likely

---

[37] Hakim, "Inter-American Discord," 90.

[38] Chris Leuchars, "Brazil and the league council crisis of 1926," *Diplomacy & Statecraft* 12, no. 4 (2001), 121, 140, http://dx.doi.org/10.1080/09592290108406229.

[39] Patrick Stewart, "Brazil Seeking Security," 7July 2010, The National Interest, 2, http://nationalinterest.org/commentary/brazil-seeking-security-3622.

[40] Stewart, "Brazil Seeking Security," 2.

[41] Arturo C. Sotomayor, "Latin America's Middle Powers in the United Nations: Brazil and Mexico in Comparative Perspective," *Journal of International Peacekeeping* 16, no. 3 (June 2009), 367.

impeded such support.[42] The CFR posits that President Obama's endorsement of India for the UNSC, along with his stated intent to "make sure that the new realities of the twenty-first century are reflected in international institutions . . . including the United Nations, where Brazil aspires to a seat on the Security Council," bode well for resolution of this long-standing issue.[43] Regardless, several analysts agree that the time has come to endorse Brazil's UNSC membership, with Hakim and the CFR arguing that Brazil's ascendancy to the council is almost inevitable at some point and that the United States could gain some goodwill by endorsing it sooner rather than later.[44]

The friction over nuclear issues has both historical and current sources.[45] The Carter administration's pressure on Brazil that ended the military agreement between the United States and Brazil also included efforts to block Brazil's nuclear program; the military regime, however, considered its nuclear program an essential element of its national security doctrine and continued to pursue nuclear technology.[46] Hurrell notes that Brazil did make significant changes vis-à-vis nuclear non-proliferation in the 1990s by joining the Missile Technology Control Regime (MTCR) and Nuclear Suppliers Group (NSG), and signing the Tlatelolco Treaty and the Nuclear Non-Proliferation Treaty (NPT).[47] Yet several analysts note that Brazil's failure to sign the additional protocol of the NPT, its support for Iran's nuclear program, and its recent joint efforts with Turkey to broker a deal for nuclear fuel swap on Iran's behalf, have been viewed with

---

[42] Ibid., 367, 369–71.

[43] Council on Foreign Relations, "Global Brazil and U.S.-Brazil Relations," 48.

[44] Ibid.; Hakim, "Inter-American Discord," 94.

[45] For a more extensive treatise on Brazil's nuclear aspirations, its nuclear program, and its dissensions regarding the NPT and the additional protocol, see Michael Barletta, ''The Military Nuclear Program in Brazil,'' Center for International Security and Arms Control (Stanford University, August 1997); Arturo Sotomayor, *U.S.-Latin American Nuclear Relations: From Commitment to Defiance*, PASCC Report No. 2012013 (Monterey, CA: Project on Advanced Systems and Concepts for Countering WMD, Naval Postgraduate School, 2012); and Arturo C. Sotomayor, "Brazil and Mexico in the Nonproliferation Regime: Common Structures and Divergent Trajectories in Latin America," *The Nonproliferation Review* 20, no. 1 (2013), 81–105.

[46] Hirst and Hurrell, *The United States and Brazil*, 8.

[47] Ibid., 79.

skepticism and frustration by U.S. officials and called into question Brazil's dedication to non-proliferation.[48]

On the Brazilian side, officials resent the questioning of Brazil's commitment to the non-proliferation regime. They contend that their support for Iran stems from a view that the arguments against it could also be used at some point to target Brazil's nuclear program and that the NPT is discriminatory in nature, as non-signatories such as Israel and India have signed nuclear agreements with the United States and received U.S. assistance.[49] Furthermore, as Sotomayor notes, Brasília perceives that the NPT and the additional protocol are overly intrusive, serve as a means for the United States and other developed nations to block the transfer of peaceful nuclear technology to developing countries, and provide nuclear states "free access to the most sensitive nuclear technologies of developing states."[50]

So where does the issue of technology transfer fit into the larger framework of Brazil-U.S. relations? Hakim argues, "The central problem for Brazil-US relations has not been their disagreements. It has been their inability to find areas of agreement."[51] Several analysts and policy papers posit that understanding and overcoming the misperceptions on both sides as they pertain to technology transfer may open up an area of agreement and lead to an overall

[48] Stewart, "Brazil Seeking Security," 3-4; Council on Foreign Relations, "Global Brazil and U.S.-Brazil Relations," 64–68; Hakim, "Inter-American Discord," 97–98.

[49] Harold Trinkunas and Thomas Bruneau, *U.S.-Brazil Workshop on Global and Regional Security*, 6.

[50] Sotomayor, "U.S.-Latin American Nuclear Relations, 16; Sotomayor, "Brazil and Mexico in the Nonproliferation Regime, 97.

[51] Hakim, "Inter-American Discord," 98.

improvement in bilateral relations.[52] Finding common ground on technology transfer is something both sides desire and could lead to mutual security and economic benefits. In a fiscally constrained environment where the U.S. government is cutting back on defense expenditures, greater technology transfer to Brazil should result in greater sales for U.S. defense companies and help maintain the defense industrial base in the United States. Brazilian purchase of U.S. military equipment would increase interoperability between the two countries and lead to additional training and exchange opportunities that would likely enhance the bilateral relationship, at least at the military-to-military level.

For Brazil, it helps them build up their industrial base, potentially creating more employment and wealth generated from authorized third-party sales. In security terms, by virtue of the United States assisting Brazil to modernize its military and thereby providing it the means to protect its natural resources, this could belie old fears within Brazil about U.S. intentions and pave the way to forge a defense relationship akin to the brotherhood of arms that existed in the early twentieth century. Additionally, as Hakim posits, "U.S. technology could contribute a great deal to accelerate Brazil's development of a world-class nuclear energy industry—and could, over time, help increase Brazil's support of non-proliferation."[53]

E. METHODS AND THESIS OVERVIEW

This thesis consists of four chapters. This first chapter was an introductory chapter and provided background on the issue of technology transfer, its

[52] See Council on Foreign Relations, "Global Brazil and U.S.-Brazil Relations," 26–28; Brazil-U.S. Business Council, "The U.S.-Brazil Defense Partnership," 1–12; Downes, "Trust, Engagement, and Technology Transfer," 14; Peter Hakim, "Brazil and the US Security Agenda," *Política Externa* (February 2012), 132, http://www.thedialogue.org/uploads/Peter/BrazilandtheUSSecurityAgenda_PoliticaExterna_English.pdf; Johanna Mendelson Forman, "Recommendations for a New Administration: Building a Dynamic U.S.-Brazil Partnership," *CSIS Hemisphere Focus* (Washington, DC: Center For Strategic and International Studies, 2012), 1–2, https://csis.org/files/publication/121219_JMForman_Brazil_HemFocus_0.pdf.

[53] Hakim, "Brazil and the US Security Agenda," 132.

importance, and an overview of Brazil-U.S. relations. This chapter relied primarily on secondary sources.

As this thesis is essentially a fact-finding mission to understand the nature of the challenge of technology transfer between the United States and Brazil, it is first essential to understand the policies of each country that relate to technology transfer. Thus, Chapters II and III of the thesis explore each country's policy and/or strategy on technology transfer. To the fullest extent possible, these chapters rely on U.S. and Brazilian official policy documents and other primary sources such as official statements from officials in either country. These chapters also draw on secondary sources including writings by academics or entities with expertise in technology transfer or on either country's policies pertaining to defense and technology transfer.

In order to discover the sources of misperception over technology transfer, the fourth chapter of the thesis employs a comparative study. This chapter compares procurement and technology transfer efforts in two areas, nuclear and aviation, and relies on a combination of primary and secondary sources. It also provides a conclusion and presents the thesis's findings.

II. U.S. POLICY

The purpose of this chapter is to provide an overview of U.S. policies that have a bearing on defense technology transfer. It will begin by providing key definitions and concepts that relate to defense technology transfer. Since most defense technology transfer comes about in conjunction with arms transfers, U.S. policies that govern these transfers will also be discussed. This will include a description of the U.S. export control system and other international arrangements that have an impact on the transfer of defense-related technology. Additionally, the chapter will provide a brief history of U.S. security assistance and arms transfer policies and their effects on Latin America.

A. DEFINITIONS AND CONCEPTS

As noted in the introduction, the U.S. government has placed much emphasis in recent years on engagement, partnership, and cooperation as key elements of national security policy, as denoted in high-level policy documents such as the NSS and the QDR. While accepting a continuing position of importance for the United States in the global system, these documents recognize the increasingly multipolar nature of the global environment and, thus, the need to cooperate with other friendly actors in the system to help ensure stability and protect U.S. national interests. The QDR notes, "U.S. security is inextricably tied to the effectiveness of our efforts to help partners and allies build their own security capacity.[54]

1. Security Cooperation and Security Assistance

One avenue the United States uses to pursue the objective of fostering engagement, partnership, and cooperation is through security cooperation and assistance programs. The DOD defines security cooperation as:

[54] Department of Defense, *Quadrennial Defense Review*, 73.

> Activities undertaken by the DoD to encourage and enable international partners to work with the United States to achieve strategic objectives. It includes all DoD interactions with foreign defense and security establishments, including all DoD-administered security assistance programs, that: build defense and security relationships that promote specific U.S. security interests, including all international armaments cooperation activities and security assistance activities; develop allied and friendly military capabilities for self-defense and multinational operations; and provide U.S. forces with peacetime and contingency access to host nations.[55]

Security assistance (SA), which represents a subset of security cooperation, is one of the primary vehicles through which the U.S. government and DOD pursue the building of partner-nation capacity. It is defined as:

> a group of programs, authorized under Title 22 authorities, by which the United States provides defense articles, military education and training, and other defense-related services by grant, loan, credit, cash sales, or lease, in furtherance of national policies and objectives.[56]

Through SA programs, the U.S. government transfers, among other things, defense goods such as conventional arms and defense technology to its foreign partners.

2. Foreign Military Sales and Direct Commercial Sales

Within the realm of SA, the principal methods by which foreign governments procure U.S. defense articles are foreign military sales (FMS) and direct commercial sales (DCS). Both processes are subject to a myriad of laws, regulations, and policies, which will be discussed in more detail in the section on the U.S. export control system. By law, most U.S. military systems can be purchased under FMS or DCS, though some more sensitive systems may be restricted to sale via FMS due to the greater level of involvement and oversight

[55] Defense Security Cooperation Agency, "Security Cooperation Overview and Relationships," in *DSCA Manual 5105.38-M: Security Assistance Management Manual (SAMM),* April 2012, http://www.samm.dsca.mil/chapter/chapter-1.

[56] Ibid.

by government entities in this process. When purchasing via FMS, a partner nation enters into an agreement directly with U.S. government. They follow an established process to generate a request expressing their interest in purchasing U.S. defense equipment. Entities within the DOD and Department of State (DOS) review these requests to determine a country's eligibility to purchase the desired items. Once eligibility has been determined, the U.S. government can then acquire the items from U.S. companies and transfer them to the partner nation. FMS offers partner nations the flexibility of purchasing items using their own funds or those provided them by the U.S. government through assistance programs. Countries desiring to project a closer relationship with the United States may prefer to use the FMS process because of its establishment of a direct government-to-government relationship. Purchasing through FMS may facilitate closer ties with the U.S. military as well, by providing access to joint training and doctrine.[57]

DCS offers an alternative method for foreign governments to obtain U.S. military equipment. Like FMS, any DCS purchase is subject to review and approval by DOD and DOS entities, with the U.S. firm obtains an export license to negotiate with and sell to the foreign nation. Under DCS, however, rather than negotiate directly with the U.S. government on a defense-related purchase, the foreign government negotiates the purchase directly with the U.S. firm that produces the desired item. With few exceptions, countries pay for DCS purchase using their own funds. DCS may be more attractive to countries interested in having a greater level of participation in purchase negotiations, purchasing nonstandard equipment configurations, or limiting direct interaction with the U.S. government. In countries where the U.S. is not viewed positively, "public opinion

[57] Defense Institute of Security Assistance Management [DISAM], *The Management of Security Cooperation,* 32nd ed., 2013, 15-1–15-15, http://www.disam.dsca.mil/documents/greenbook/green_book_complete_32nd_edition.pdf; Defense Security Cooperation Agency [DSCA], "Foreign Military Sales: Frequently Asked Questions," http://www.dsca.mil/sites/default/files/fms_faq2_0.pdf.

may view a relationship with U.S. industry more favorably than the direct government-to-government relationship inherent in FMS."[58]

3. Technology Transfer

Any discussion of arms sales or transfers to foreign countries must inevitably address the issue of transfer of technology. The sale of U.S. military equipment to foreign partners, whether it is through FMS or DCS, will involve the transfer of technology at some level. The most likely forms are technical data, such as manuals or diagrams, or technical assistance, such as training or instruction provided by U.S. military personnel or contractors on the use of a defense article.[59] These types of technology transfer are often inherent in the sale of defense-related items, and the DOD and DOS take their sensitivity into consideration in determining whether to approve an FMS or DCS purchase. There are, however, other forms of technology transfer that can accompany weapons sales.

Many foreign governments, including Brazil, have moved away from the traditional approach of simply purchasing and importing finished military systems. Instead, they now seek the transfer of the underlying technology needed for the development and production of military systems as a condition of granting large arms contracts to foreign producers.[60] This type of technology transfer coincides with the following DOD definition: "Technology transfer is the process of transferring, from an industry in one country to another or between governments themselves, technical information relating to the design, engineering, manufacture, production, and use of goods."[61] From the U.S. point of view, this level of technology transfer, particularly in the realm of defense technology,

---

[58] DISAM, *The Management of Security Cooperation*, 15-1–15-15; DSCA, "Foreign Military Sales: Frequently Asked Questions."

[59] Bruno Gruselle and Perrine Le Meur, *Technology transfers and the Arms Trade Treaty – Issues and Perspectives,* No. 02/2012 (Paris: Fondation pour la Recherche Stratégique, 2012), 8, http://www.frstrategie.org/barreFRS/publications/rd/2012/RD_201202.pdf.

[60] Ibid., 5.

[61] DSCA, *Security Assistance Management Manual,* 7-2.

represents both opportunities and challenges that must be balanced when deciding what technology to transfer and to whom.

Indicative of the balance that must be struck when transferring defense technology is the following statement in former President George H. W. Bush's 1991 NSS:

> The interrelationship of economic and military strength has never been stronger. Both are affected by the way technology transfer is handled, particularly with respect to export controls. . . . Loss of technological leadership can undermine military readiness and strength. Not participating freely in worldwide markets constrains economic growth.[62]

In effect, the choice to transfer military technology comes down to achieving a balance between goals related to economic security and national security that may be at odds with one another.

Taking into consideration purely economic factors, the impetus is strongly in favor of transferring arms and defense technology. In a fiscally constrained environment, such as the one the United States finds itself in now, the U.S. military will find itself obligated to reduce its expenditures on new defense technologies and equipment. These cutbacks have a negative impact on the economy in general and on the defense industrial base in particular. The transfer of arms and technology to foreign partners and allies, however, can help offset these losses to the economy and maintain the health of the defense industrial base. For example, Brazil spent more than 2.3 billion U.S. dollars on weapons imports from 2000 to 2010, but only 16 percent of that amount was spent on U.S. produced arms.[63] Political considerations aside, by including a greater degree of technology transfer in FMS and DCS sales to Brazil, the U.S. defense industrial base should be able to capture a larger percentage of the Brazilian arms market.

---

[62] White House, *National Security Strategy* (Washington, DC: White House, 1991), 21, http://nssarchive.us/NSSR/1991.pdf.

[63] Downes, "Trust, Engagement, and Technology Transfer," 2.

There are some potentially negative economic impacts that can come about as result of technology transfers. Two related examples are reverse engineering and third-party sales. Russia has encountered these problems in its sales of fighter aircraft to China. In 1996, Russia agreed to transfer technology to China as part of the licensed production agreement for 200 Su-27s. Halfway through the agreement, however, China canceled the contract and subsequently began selling its own J-11B variant of the aircraft, which it claimed was composed of 90 percent domestic content, on the global market. Third-party sales of this essentially reverse engineered Su-27 now compete with Russian exports in the market.[64]

Third-party sales also represent a potential risk to national security that must be accounted for in any transfer of arms and defense technology. The United States must take measures to prevent its defense technology and military equipment from being transferred to its current or potential adversaries. If not, it runs the risk of losing its advantage in the military domain.

National security considerations can also work in favor of technology transfer. Arms and technology transfers contribute to the U.S. defense objective of preventing and deterring conflict. This type of security cooperation helps partner nations acquire and develop the capabilities they need to defend themselves, fosters relationships that can be called upon in times of conflict, and increases interoperability with U.S. forces.[65]

The preceding discussion demonstrates the complex nature of arms and technology transfers from the U.S. to foreign countries. The policy promulgated in DOD Instruction 2040.02, titled “International Transfers of Technology, Articles, and Services,” effectively captures this:

---

[64] Raymond Franck, Ira Lewis and Bernard Udis, *Impact of Export Control and Technology Transfer Regimes: International Perspectives*, Acquisition Research Sponsored Report Series NPS-AM-12-001 (Monterey, CA: Naval Postgraduate School, January 2012), 4, http://hdl.handle.net/10945/33844.

[65] Department of Defense, *Quadrennial Defense Review*, 73.

> Dual-use and defense-related technology shall be treated as valuable national security resources, to be protected and transferred only in pursuit of national security and foreign policy objectives. . . . The sharing of defense technology, properly controlled, is a valuable way to ensure our allies participate with the United States in future military operations. In applying export control and technology security policies, due recognition will be given to the importance of interoperability with allies and coalition partners and to direct and indirect impacts on the defense industrial base . . . the Department of Defense shall apply export control and other technology security policies and procedures in a way that balances economic and scientific interests with those of national security.[66]

The DOD operates within the framework of the U.S export control system to ensure security cooperation involving arms and technology transfer strike a balance between maintaining U.S. military superiority and enabling foreign partners to meet their defense needs and operate effectively in concert with the U.S. military. The following section will provide a brief overview of that system.

B. U.S. EXPORT CONTROL SYSTEM

This section will describe the U.S. export control system, as this system contains the pertinent laws, regulations, and policies that have a direct bearing on technology and arms transfer decisions by the U.S. government. Additionally, the section will address some multilateral agreements that come into consideration as well.

The U.S. export control system is one of the most robust systems in the world. The system, which developed during the Cold War as a means to restrict the transfer of significant military systems and technologies to the Soviet Union,[67] has the difficult task of balancing often-competing goals of national security, foreign policy, and economic prosperity. The two primary laws governing U.S.

[66] Department of Defense, "International Transfers of Technology, Articles, and Services," DoDI 2040.02 (Washington, DC: Department of Defense, 2008), 2, http://www.dtic.mil/whs/directives/corres/pdf/204002p.pdf.

[67] Committee on Science, Engineering, *Finding Common Ground: U.S. Export Controls in a Changed Global Environment* (Washington, DC: National Academy Press, 1991), 62.

exports of defense items and dual-use goods and technology are the Arms Export Control Act (AECA), which is implemented by the International Traffic In Arms Regulations (ITAR), and the Export Administration Act (EAA), which is implemented by the Export Administration Regulations (EAR). Figure 3 is a graphical depiction of the system and the DOD's role in it.

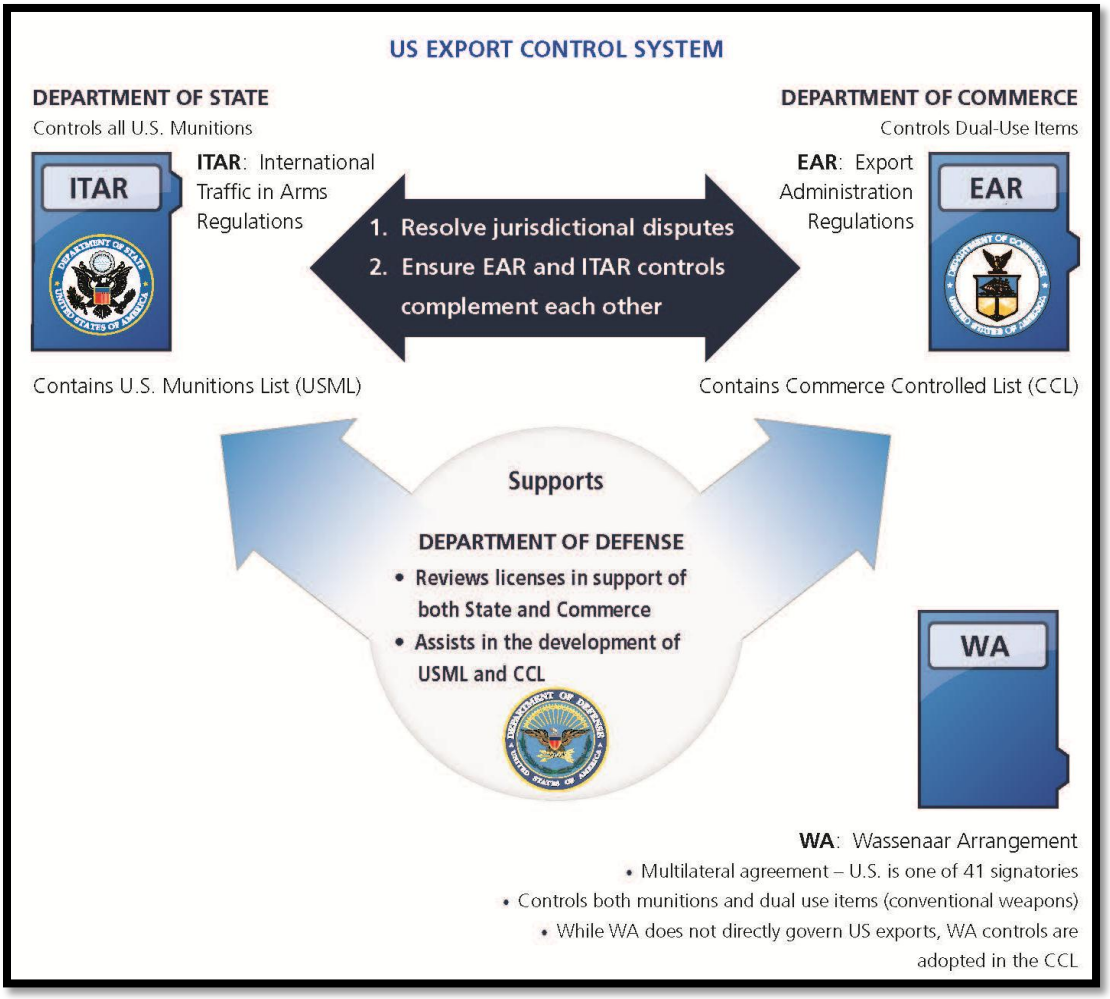
US EXPORT CONTROL SYSTEM
DEPARTMENT OF STATE
Controls all U.S. Munitions
ITAR
ITAR: International Traffic in Arms Regulations
1. Resolve jurisdictional disputes
2. Ensure EAR and ITAR controls complement each other
DEPARTMENT OF COMMERCE
Controls Dual-Use Items
EAR: Export Administration Regulations
EAR
Contains U.S. Munitions List (USML)
Contains Commerce Controlled List (CCL)
Supports
DEPARTMENT OF DEFENSE
• Reviews licenses in support of both State and Commerce
• Assists in the development of USML and CCL
WA
WA: Wassenaar Arrangement
• Multilateral agreement – U.S. is one of 41 signatories
• Controls both munitions and dual use items (conventional weapons)
• While WA does not directly govern US exports, WA controls are adopted in the CCL

Figure 3. U.S. Export Control System[68]

[68] Defense Technology Security Administration (DTSA), *DTSA Strategic Plan 2013*, 11, http://www.dtsa.mil/Documents/DTSA_Strat_Plan.pdf.

1. Arms Export Control Act and International Traffic in Arms Regulations

Through the U.S. export control system, Congress has delegated its authority to regulate foreign commerce to the President. The AECA of 1976 authorizes the executive branch to control the transfer of defense articles and services. Under the AECA, the president has furthered delegated this authority to the DOS, which administers the ITAR. The focus of the AECA is on exports of items that are specifically designed for military applications. The act delineates the general eligibility criteria for foreign countries to receive U.S. military technology and systems, defines the proper use of these items by foreign partners, and provides the statutory authority for the FMS and, by extension, DCS programs.[69]

The ITAR represents the implementation of the AECA. It designates the Directorate of Defense Trade Controls (DDTC) within the DOS as the entity responsible for regulating the export of defense goods and services. The AECA mandates "that the President shall designate the articles and services deemed to be defense articles and defense services" via the DOS in concert with the DOD.[70] Per the ITAR, defense articles and services are items that are "specifically designed, developed, configured, adapted, or modified for a military application," have no "predominant civil applications," and for which there is no "performance equivalent (defined by form, fit and function) to those of an article or service used for civil applications."[71] Section 121 of the ITAR, known as the U.S. Munitions List (USML), constitutes the list of items that fit this definition and are thus subject to export controls under the ITAR. The DDTC performs its functions primarily through its review of proposed purchases of items on the USML. Although some items on the USML have general "no-transfer" policy and

[69] Ian Ferguson and Paul Kerr, *The U.S. Export Control System and the President's Reform Initiative*, CRS Report R41916 (Washington, DC: Library of Congress, Congressional Research Service, 2013), 1–2.

[70] *Code of Federal Regulations,* International Traffic in Arms Regulation, title 22, sec. 120, http://www.pmddtc.state.gov/regulations_laws/documents/official_itar/2013/ITAR_Part_120.pdf.

[71] Ibid.

countries against which the U.S. or U.N. has an embargo are proscribed from receiving defense equipment and technology, in general, the DDTC decides all export applications on a case-by-case basis, taking into consideration the sensitivity of the items and technology, as well as the country of destination and its political, economic and security circumstances.[72]

The USML divides defense items up into 21 different categories. The list is extensive, with categories including small arms, guns and armament, ammunition/ordinance, naval vessels, aircraft and associated equipment, radars, military training and equipment, chem/bio agents, and nuclear weapons and technology, to name a few. Even commercial satellites and their technology are covered in the USML, something that is not common in the export control regimes of other countries.[73] Within the categories of the USML, some defense items—including all classified articles—are designated as "significant military equipment," and thereby subject to special export controls and greater scrutiny in the licensing process. Of note, an item's inclusion on the USML makes it automatically subject to ITAR export controls; the "intended use of the article or service after its export (i.e., for a military or civilian purpose) is not relevant in determining whether the article or service is subject to the controls."[74] Additionally, ITAR controls apply not only to the hardware of items on the USML, but also any defense services (i.e., training or production assistance) and technical data that accompany the transfer of these items.[75]

In addition to their provisions for the export of defense items, the AECA and ITAR also specify the need to conduct end-use monitoring of these items and technology for any approved transfer. Monitoring is conducted to provide "reasonable assurance that i) the recipient is complying with the requirements

---

[72] Ferguson and Kerr, *The U.S. Export Control System,* 6.

[73] Department of State, "Defense Trade Controls Overview," http://pmddtc.state.gov/reports/documents/defense_trade_overview_2006.pdf.

[74] *Code of Federal Regulations,* International Traffic in Arms Regulation, title 22, sec. 120.

[75] Ibid.

imposed by the U.S. government with respect to use, transfers, and security of defense articles and defense services; and ii) such articles and services are being used for the purposes for which they are provided."[76] The DOS Blue Lantern program carries out the end-use monitoring activities of USML items transferred via DCS. U.S. embassy personnel carry out Blue Lantern checks in country, and discovery of violations can result in the rejection or revocation of licenses as well criminal prosecution. These checks are not random; they are initiated and carried out based on potential risk of improper end-use or unauthorized third-part retransfer. In FY2012, of the 706 Blue Lantern cases closed, 20 percent were found to be in violation of the terms agreed upon in the authorization agreement.[77]

2. Export Administration Act and Export Administration Regulations

Arms and weapons technology are not the only exports the U.S. government regulates. Congress has also delegated its authority to the executive branch to regulate all exports from the United States to foreign countries via the EAA of 1979. Under the EAA, the President can restrict exports for three reasons: 1) national security; 2) foreign policy; and 3) short-supply. Though the act is currently expired, its power continues in force under a presidential declaration of national emergency and the provisions of the International Emergency Economic Powers Act.[78]

The EAR implements the powers of the EAA. It designates the Bureau of Industry and Security (BIS) within the Department of Commerce (DOC) as the entity responsible for administering the provisions of the EAR. Most relevant to the present discussion, the EAR empowers BIS to monitor and control the export

[76] Department of State, "End-Use Monitoring of Defense Articles and Defense Services Commercial Exports FY 2012," http://www.pmddtc.state.gov/reports/documents/End_Use_FY2012.pdf.

[77] Ibid.

[78] Ferguson and Kerr, *The U.S. Export Control System,* 2–3.

of dual-use goods. Dual-use goods are defined as "commodities, software, or technologies that have both civilian and military applications."[79] Like the ITAR, which designates military items via the USML, the EAR maintains a similar list of dual-use goods known as the Commerce Control List (CCL). BIS reviews applications to transfer items on the CCL and monitors their use after transfer.[80]

The CCL classifies dual-use goods into 10 categories: 0) nuclear and miscellaneous; 1) materials, chemicals, microorganisms and toxins; 2) materials processing; 3) electronics; 4) computers; 5) telecommunications and information security; 6) sensors and lasers; 7) navigation and avionics; 8) marine; and 9) aerospace and propulsion. These categories are further sub-divided into five product groups: A) systems, equipment and components; B) test, inspection and production equipment; C) material; D) software; and E) technology. Based on these categories and sub-groups, dual-use goods are assigned an export control classification number (ECCN), and the assignation of such indicates an item is subject to the EAR's export control process. Along with the ECCN, the CCL also indicates the reason an item is subject to export control (i.e., national security, nuclear nonproliferation, etc.) and includes a country list that indicates which CCL items require an export license for each country. Additionally, even if an item is not specifically identified on the CCL, it still may be subject to EAR controls if the item is destined for military use or is being transferred to an entity that is a known or suspected weapons proliferator.[81]

As with items on the USML, exported items and technology on the CCL must be monitored to ensure they are used in accordance with their licensing agreements and are not retransferred to third parties without consent of the U.S. government. The Office of Export Enforcement within BIS carries out this function

[79] Ibid.

[80] Ferguson and Kerr, *The U.S. Export Control System,* 2–4.

[81] BIS, "Commerce Control List Overview and the Country Chart," October 2013, 1–9, http://www.bis.doc.gov/index.php/forms-documents/doc_download/14-commerce-country-chart.

through its Extrancheck program. Under Extrancheck, BIS Attachés, Sentinel Teams, and in-country embassy personnel perform end-use monitoring of dual-use goods.[82]

3. Multilateral Agreements

In addition to ITAR and EAR controls, several multilateral agreements related to arms transfers inform and influence U.S. export control policies. While these agreements do not directly control U.S. exports of defense or dual-use goods and technologies, many of their provisions are included in the EAR and ITAR. Following is a summary of these agreements.

a. Wassenaar Arrangement

Established in 1996 and currently comprising of 41 signatories, the Wassenaar Agreement (WA) is an international agreement on the control of conventional arms and dual-use goods. Its stated goal is "to contribute to regional and international security and stability, by promoting transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies, thus preventing destabilising accumulations." The WA includes a munitions list and a dual-use control list that participating countries agree to control via their national export control systems. WA controls are reflected in the USML and CCL. For example, items on the "sensitive" and "very sensitive" lists of the CCL come directly from equivalent lists in the WA; many of these items are the software and technology designed for the development and production of other items on the list. Brazil is not a signatory of the WA.[83]

---

[82] DISAM, *The Management of Security Cooperation*, 18-1, 18-8; Ferguson and Kerr, *The U.S. Export Control System,* 5.

[83] "Introduction," "Overview," and "How the WA Works," Wassenaar Arrangement, accessed 27 February 2014, http://www.wassenaar.org/introduction/index.html; BIS, "The Commerce Control List," October 2013, 14–31, http://www.bis.doc.gov/index.php/forms-documents/doc_download/750-774.

b. Missile Technology Control Regime

Established in 1987 and currently consisting of 34 member states, the MTCR is a voluntary and informal regime whose signatories agree to control the proliferation of "unmanned delivery systems capable of delivering weapons of mass destruction."[84] The United States is a founding member of the regime, and the AECA mandates that controlled items contained in the two categories of the MTCR annex be included on the USML. The most sensitive items in the MTCR are contained in Category I, and the regime's guidelines indicate "a strong presumption to deny" transfers of these items. Brazil is also a signatory of the regime.[85]

c. Nuclear Suppliers Group

The NSG was established in 1975, and both the United States and Brazil are among its 46 members. It is an informal association of nuclear exporting states whose goal is to ensure that trade in peaceful nuclear capabilities does not contribute to the proliferation of nuclear weapons. "NSG members voluntarily agree to coordinate exports of civilian nuclear material, as well as nuclear-related equipment and technology, to non-nuclear-weapon states," and to "offer nonproliferation and physical security assurances."[86]

d. Australia Group

Like the NSG, the Australia Group (AG) is also a voluntary and informal export control regime. The group's 41 members agree to control exports in accordance with a set of six common control lists. The goal of the group is "to ensure that exports of certain chemicals, biological agents, and dual-use

---

[84] "Introduction," The Missile Technology Control Regime, accessed 27 February 2014, http://www.mtcr.info/english/index.html.

[85] Ibid., Ferguson and Kerr, *The U.S. Export Control System,* 9.

[86] "Guidelines," Nuclear Suppliers Group, accessed 27 February 2014, http://www.nuclearsuppliersgroup.org/A_test/01-eng/09-guide.php?%20button=9; Ferguson and Kerr, *The U.S. Export Control System,* 9.

chemical and biological manufacturing facilities and equipment, do not contribute to the spread of CBW."[87] Brazil is not currently a member of the AG.

4. DOD's Role in Export Control and Technology Transfer

Although the DOS and DOC are designated as the decisive authorities for approval of arms and technology transfer, the DOD still plays an important role in the process as depicted in Figure 1. The principal body with responsibility in this area within the DOD is the Defense Technology Security Administration (DTSA). DTSA's mission is to, "Identify and mitigate national security risks associated with the international transfer of advanced technology and critical information in order to maintain the U.S. warfighter's technological edge and support U.S. national security objectives."[88] Additionally, in fulfilling its mission, DTSA is charged with considering the importance of providing "capabilities to our partners and allies, including through the transfer of critical technology and information" and "sustaining a vibrant and innovative U.S. defense industrial base."[89] Its key responsibilities regarding arms and technology transfer include: developing and implementing DOD policy on technology security; reviewing export licenses from DOS and DOC for munitions and dual-use goods in accordance with the AECA and EAA and providing the consolidated DOD position (based on input from the various services and Combatant Commands) and recommendations regarding these requests; and ensuring the proper disclosure of classified military information as dictated by National Disclosure Policy-1, "National Policy and Procedures for the Disclosure of Classified Military Information to Foreign Governments and International Organizations." DOD's support to the export control system via DTSA and other related organizations within the department is a key factor in the arms and technology transfer process.[90]

---

[87] "AG Objectives," The Australia Group, accessed 27 February 2014, http://www.australiagroup.net/en/objectives.html; Ferguson and Kerr, *The U.S. Export Control System,* 9.

[88] DTSA, *DTSA Strategic Plan 2013*, 9.

[89] Ibid., 2.

[90] Ibid., 5–7.

5. Criticism of the U.S. Export Control System

Though a relatively brief overview, the preceding discussion highlights the complexity of the U.S. Export Control System and the challenges to efficiency it faces in light of the number of government agencies involved and the competing goals it attempts to balance. The system has thus been the subject of criticism from many actors involved in the process. It has been called "too rigorous, insufficiently rigorous, cumbersome, obsolete, inefficient, or any combination of these descriptions."[91] The nature of criticism depends on where one sits. As noted in the introduction, the QDR characterizes the system as a relic of the Cold War and criticizes it for being a stumbling block to effective cooperation with our allies and detrimental to the competitiveness of U.S. industry. While non-proliferation advocates often support even more comprehensive controls, exporters in business and potential importers alike often complain that the system is too complicated to navigate effectively, and many importing nations perceive that the system denies far too many proposed transfers.

While there are certainly some inefficiencies and challenges with the system, there is information that suggests it functions effectively. First, data indicate that the number of denials is actually quite low. For example, in FY2012, BIS processed 23,229 export licenses for dual-use goods subject to the EAR; less than one percent of these applications were denied. Similarly, DTSA reviewed 20,603 dual-use and 39,870 munitions license applications in 2012, and it objected to only six percent and less than one percent respectively. Furthermore, the United States dominated the global arms market in 2011, with its arms transfer agreements to both developed and developing nations valued at U.S. $66.3 and accounting for nearly 78 percent of all such agreements. Additionally, both the EAR and ITAR currently have standard processing times for approving or denying export licenses that are less than 90 days, except in cases of certain national security exemptions. These timelines include the time it

[91] Ferguson and Kerr, *The U.S. Export Control System*.

takes for DOS and DOC to forward requests to other agencies such DOD to include their recommendations. Finally, the current administration's export control initiative, which will be discussed further in the following section, has resulted in many items being transferred from the USML to the CCL, thereby subjecting their export to a somewhat lesser degree of scrutiny.[92]

Despite this evidence, many—especially would-be importers of advanced arms and technology such as Brazil—still express consternation with the U.S. system. The system is designed to generally restrict the transfer of the most sensitive technology, so the small percentages of licenses that are denied almost certainly fall into this category. Thus, any foreign entity seeking such technology will likely find the system frustrating. But there is another potential source of frustration for importing countries: U.S. foreign policy and its influence on arms and technology transfer. Over the years, U.S. presidents have enacted different foreign policies and used arms transfers as a key component of these policies. They have often used the provisions of the export control system to formulate their own arms transfer policies and justify restricting exports to some regions while permitting them to others in accordance with their foreign policies. The following section will provide a brief history of U.S. SA and arms transfer policies to show how these policies have shifted over time.

C. U.S. SECURITY ASSISTANCE AND ARMS TRANSFER POLICIES

Particularly since the end of WWII, the provision of SA to allies and partner nations has formed an important part of U.S. foreign policy. Policy in the SA arena, however, has evolved over time and across presidential administrations, thus at times both positively and negatively affecting certain

[92] Ferguson and Kerr, *The U.S. Export Control System*, 4–10; DTSA, *DTSA Strategic Plan 2013*, 16; Richard Grimett and Paul Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, CRS Report R42678 (Washington, DC: Library of Congress, Congressional Research Service, 2012).

countries and regions' ability to procure U.S. arms and technology. This section will briefly outline the evolution of U.S. SA policy, including key presidential doctrines and policies.

1. The Truman Doctrine

U.S. SA policies after WWII were formulated within the context of the Cold War. Ultimately, most of these presidential policies were designed to forward U.S. objectives of containing the spread of communism and isolating the Soviet Union. The first major SA policy in the post-war era, known as the Truman Doctrine, came in the form of a request from President Truman to provide substantial military and economic aid to Greece and Turkey. Truman stated:

> I believe that it must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or by outside pressure. I believe that we must assist free peoples to work out their own destinies in their own way.[93]

Following congressional approval of the Greece-Turkey Aid Act of 1947, the two nations received over U.S. $600 million in military and economic aid, nearly 1,000 U.S. military advisors went to the countries and established military advisory and planning groups, and they were given U.S. arms from surplus war materiel as part of what would become known as the Military Assistance Program (MAP). MAP would later be an important component of the U.S. involvement in NATO, and as U.S. stockpiles declined, SA would shift towards arms sales and technical assistance programs to NATO nations to assist them in their own defense production.[94] MAP under Truman did not, however, benefit Brazil or other Latin American nations. Congress passed the Mutual Defense Assistance Act in 1949, but this act did not allocate arms to Latin American countries as part of any aid package; they would have to purchase them.[95]

---

[93] DISAM, *The Management of Security Cooperation*, A2-5.

[94] Ibid., A2-4–A2-7.

[95] Davis, "Brazil-United States Military Relations," 19–20.

2. The Eisenhower Doctrine and the Kennedy-Johnson Era

The potential for communist expansion in the 1950s led to the expansion of SA programs first under President Eisenhower, and subsequently under Presidents Kennedy and Johnson. U.S. aid policy broadened to support not only containment efforts, but also concepts such as forward defense, internal security, counterinsurgency, and nation building. Under Eisenhower, military aid was extended beyond the scope of strictly providing SA to allied nations to also include nations deemed to be friendly. Furthermore, the Eisenhower Doctrine asserted the U.S. right to deploy forces assist any nation in the Middle East requesting assistance to defend itself against aggression from a communist-controlled country.[96]

The Kennedy and Johnson administrations expanded this doctrine to provide assistance to other parts of the world. Kennedy initiated the Alliance for Progress in 1961 to provide greater economic and military assistance to Latin America. The objective of the program was to help stabilize the countries in the region to protect them against internal and external revolutionary threats, particularly against the export of the Cuban communist revolution. Though the program led to some additional assistance to the region, the program died out by the end of the 1960s as the attention of U.S. political and military leaders was diverted to combating communist expansion in Southeast Asia. During this period over U.S. $29 billion on equipment and aid was sent to Asia, most of it to South Vietnam. The Middle East continued to be a focus of assistance, but this assistance shifted from SA via MAP grants to SA via FMS.[97]

3. Nixon Doctrine

The enormous cost of U.S. involvement in the Vietnam War, coupled with domestic dissatisfaction with said involvement, led to a shift in U.S. foreign policy under Nixon that affected U.S. SA. The Nixon doctrine essentially stated that

[96] DISAM, *The Management of Security Cooperation*, A2-7–A2-8.

[97] Ibid., A2-8–A2-9.

while the U.S. would continue to be responsible for the deterrence of nuclear and conventional war, it was the primary responsibility of individual nations to protect themselves against internal threats and localized conflicts. The U.S. would continue to provide economic and material support, but the deployment of U.S. forces in these types of conflicts was to be significantly curtailed. The self-sufficiency embodied in this doctrine further shifted U.S. SA efforts from MAP grants to military sales. Nixon criticized earlier foreign policies such as the Alliance for Progress, stating that these policies put the U.S. in a dictatorial role over regions such as Latin America and that his focus would shift to one of partnership. Conflicts in the Middle East continued to be of great concern to the United States under Nixon, and thus large amounts of U.S. military equipment were sold to primarily Iran, Israel, and Saudi Arabia.[98]

4. Ford and Carter Administrations

President Ford assumed the presidency under difficult circumstances following the resignation of President Nixon. Among the challenges he faced was how to carry out U.S. SA under increasing demand for U.S. arms worldwide, coupled with growing concern within the U.S. Congress over the global spread of U.S. arms and technology. In 1976, Congress passed the AECA, which, as outlined previously, required greater scrutiny of arms and technology transfers by DOS and DOD; it also gave Congress the power to block certain types of arms sales. Thus, the Ford administration had to juggle its desire to provide arms to countries in Latin America as a means to promote goodwill and maintain access to the region, with the new constraints on such assistance embodied in the AECA and other congressional legislation. Additionally, media attention to human rights violations by Latin American governments led to both public and domestic concern over the spread of U.S. military equipment in the region.[99]

---

[98] DISAM, *The Management of Security Cooperation*, A2-9–A2-10.

[99] Ibid., A2–10.

Against this backdrop, President Carter assumed the presidency in 1977 and shortly after, in April of that year, issued Presidential Directive 13 (PD-13), "Conventional Arms Transfer Policy." PD-13 represented a dramatic shift in U.S. SA policy and had a significant effect on the ability of many countries, including Latin American countries, to procure U.S. military equipment and technology. It stated:

> I have concluded that we must restrain the transfer of conventional arms by recognizing that arms transfers are an exceptional foreign policy implement, to be used only in instances where it can be clearly demonstrated that the transfers contribute to our national security interests. . . . The United States will give continued emphasis to formulating and conducting our security assistance programs in a manner which will promote and advance respect for human rights in recipient countries.[100]

In essence, PD-13 outlawed the provision of advanced weaponry to countries in Latin America due to the linkage between governments in the region, particularly military regimes, with unacceptable human rights records. Furthermore, it strictly prohibited the "agreements for coproduction of significant weapons, equipment, or major components, beyond assembly of subcomponents and the fabrication of high-turnover spare parts," thus outlawing technology transfer of advanced weapons systems. Carter's moratorium on advanced weapons sales to Latin America lasted 20 years, and its implementation led the Brazilian government to cancel a cooperative military agreement with the United States that had been in effect since the early 1950s. Despite the moratorium, however, the United States continued to be the largest exporter of low and medium level arms and technology to Latin America, and advanced weaponry such as fighters made their way to the region from other suppliers, such France and Russia.[101]

---

[100] White House, "Conventional Arms Transfer Policy," In *Presidential Directive/NSC-13* (Washington, DC: White House, 1977), http://www.jimmycarterlibrary.gov/documents/pddirectives/pd13.pdf.

[101] DISAM, *The Management of Security Cooperation*, A2-11–A2-12; Davis, "Brazil-United States Military Relations," 29; Edward D. Sundberg, "Arms Sales to Latin America" (master's thesis, Naval Postgraduate School, 2003), 45–46, http://hdl.handle.net/10945/6137.

5. Reagan Administration

President Reagan announced a new conventional arms transfer policy shortly after assuming the presidency. While it did not explicitly repeal the moratorium embodied in Carter's PD-13, it did represent a major shift from the Carter era, viewing arms transfers as a "essential element of our global defense policy and an indispensable component of US foreign policy" rather than an "exceptional foreign policy implement."[102] President George H.W. Bush's policy represented a continuation of the Reagan policy. Reagan's policy stated, among other things, that U.S. SA would be used to help deter Soviet aggression globally, demonstrate the United States was a reliable partner and would not abandon its friends and allies, improve the U.S. economy by strengthening the defense industrial base, and strengthen the U.S. military by improving interoperability with other militaries and potential access to regional bases. During the Reagan and Bush administrations, DCS to Latin America more than doubled from the previous 20-year period, totaling approximately U.S. $1.3 billion from 1984–1993. The weapons and technology transferred to the region during this period, however, were not advanced, with the exception of the sale of F-16s to Venezuela; a move that was permitted in response to a Russian sale of MiG-23 fighters to Cuba in 1982.[103]

6. Clinton Administration

The Clinton administration essentially marked the end of the Cold War era conventional arms transfer policy. In February 1995, the administration released *Presidential Decision Directive* (PDD-34) *on Conventional Arms Transfers*. While

[102] DISAM, *The Management of Security Cooperation*, A2-12–A2-13; White House, Presidential Directive/NSC-13, "Conventional Arms Transfer Policy."

[103] DISAM, *The Management of Security Cooperation*, A2-12–A2-13; Sundberg, "Arms Sales to Latin America," 46; Thomas Cardamone, "Arms Sales to Latin America," *Foreign Policy In Focus* 2, no. 53 (December 1997), http://fpif.org/arms_sales_to_latin_america/.

not an extreme departure from the Reagan policy, Clinton's arms transfer policy essentially summarized and codified both his and Reagan's initiatives in the arms transfer arena. It stated:

> Sales of conventional weapons are a legitimate instrument of U.S. foreign policy, enabling allies and friends to better defend themselves, as well as help support our defense industrial base. The Administration is determined to ensure a balanced approach, supporting legitimate transfers while restraining those which could threaten our foreign policy and national security interests.[104]

Additionally, Clinton repealed the Carter administration's ban on the sale of advanced weaponry to Latin America. Recognizing that the political landscape had changed in Latin America, with democratically elected regimes in all the region's countries except for Cuba, in August 1997 released "U.S. Policy on Arms Transfers to Latin America," which established "a process for case-by-case consideration of requests for advanced arms transfers to countries of that region" and put "U.S. arms transfer policy toward Latin America on a par with our policy toward other regions of the world."[105] The policies of earlier administrations, while still permitting arms transfers to the region, had led Latin American countries to have some of the least modern militaries in the world. The Clinton policy would ostensibly allow these countries to rectify this situation while improving interoperability with the U.S. military by allowing them to purchase advanced equipment that was still employed by U.S. forces. Chile was the first to take advantage of the change in policy, purchasing F-16s to modernize its air force. The policy of George W. Bush's administration essentially represented a continuation of the Clinton era policy, while introducing new measures to arm

---

[104] White House, "Conventional Arms Transfer Policy," in *Presidential Decision Directive/NSC-34* (Washington, DC: White House, 1995), http://www.disam.dsca.mil/pubs/USG/pressrelease/ARMSTRAN95.htm.

[105] White House, "U.S. Policy on Arms Transfers to Latin America," Statement by the Press Secretary, August1997, http://www.disam.dsca.mil/pubs/USG/pressrelease/LATAMCAT.htm.

partner nations participating in the war in Iraq and the Global War on Terrorism and help fund counter-drug activities in Mexico and Central America.[106]

7. Obama Administration

The Obama administration has continued to view SA as a key foreign policy implement and maintained many of the programs of the Clinton and Bush administrations. One important, though as yet incomplete, initiative of the Obama administration is its Export Control Initiative. Proposed in 2010, the initiative seeks to improve upon the current export control system by eliminating redundancies and making the transfer and licensing of certain items, particularly dual-use goods, more efficient. It outlines a new system based on four key components: 1) a single export licensing agency to replace the current DOS/DOC licensing system; 2) a unified control list to replace the CCL and USML; 3) a single enforcement agency; and 4) an integrated IT system for processing licenses and maintaining a database of sanctioned and denied parties. As part of this initiative and its associated review, the administration has already begun transferring some items (i.e., Category VIII [aircraft and associated equipment]) and Category XIX [Gas Turbine Engines]) from the USML to the CCL, and it may likely permit the transfer of commercial communication satellite equipment and technology to the CCL as well. Ultimately, the Obama initiative should ameliorate the issues with the current system and ostensibly facilitate the transfer of higher-levels of military technology to countries that seek it, such as Brazil.[107]

D. CHAPTER SUMMARY

The preceding chapter has provided an overview of U.S. policies that have a bearing on defense technology transfer. Arms and defense technology transfer

---

[106] Frank O. Mora and Antonio L. Pala, "US Arms Transfer Policy for Latin America," *Airpower Journal* 13, no. 1 (Spring 1999), http://www.airpower.maxwell.af.mil/airchronicles/apj/apj99/spr99/mora.html; DISAM, *The Management of Security Cooperation*, A2-15–A2-18.

[107] Ferguson and Kerr, *The U.S. Export Control System,* 12–20.

are a key element of U.S. SA efforts and have been deemed a key foreign policy element by U.S. administrations since the end of WWII. The transfer of arms and technology is a sensitive issue, as the decision to do so involves the difficult task of balancing often-competing goals of national security, foreign policy, and economic prosperity. Additionally, this type of SA is regulated by a robust domestic export control system as well as multiple multilateral control regimes. Furthermore, U.S. presidents over the years have used the provisions of the export control system to formulate their own arms transfer policies and justify restricting exports to some regions while permitting them to others in accordance with their foreign policies. Thus, while it is certainly constrained to large extent by the laws in place governing transfers of certain arms and technology, it is not difficult for one to see how would-be importers of advanced arms and technology such as Brazil could believe that the United States is deliberately holding back certain technologies from them based on historical antecedents.

THIS PAGE INTENTIONALLY LEFT BLANK

III. BRAZILIAN POLICY

In a 2013 commentary piece titled "Hardening Brazil's Soft Power," Celso Amorim, Brazil's Defense Minister wrote:

> Is soft power enough for one of the world's major emerging countries? To be sure, Brazil's peaceful foreign policy has served it well. . . . Yet no country can rely on soft power alone to defend its interests. Indeed, in an unpredictable world, where old threats are compounded by new challenges, policymakers cannot disregard hard power. By deterring threats to national sovereignty, military power supports peace; and, in Brazil's case, it underpins our country's constructive role in the pursuit of global stability.[108]

Amorim continued in the piece to explain how Brazil's *National Defense Strategy* (END in Portuguese), originally published in 2008 and updated in 2012, focuses on the need for Brazil to "harden its soft power" through the modernization of its military forces and the strengthening of its defense industrial complex.[109]

This chapter will provide an overview of Brazilian policies that have a bearing on these efforts and the role of defense technology transfer in them. It will begin with some background information regarding Brazil's promotion of technology transfer to the developing world and the reasons behind this. Then, it will discuss Brazil's defense policy, as outlined in the END, with particular focus on policies therein related to the transfer of defense technology. Additionally, the chapter will address how Brazil's technology transfer policy/strategy is implemented in its procurement programs as well as how technology transfer and defense modernization fit in to Brazil's grand strategy.

A. BACKGROUND

The issue of technology transfer and its importance is not new in Brazilian discourse. Indeed, Brazil was a pioneer in pushing the issue of technology

[108] Celso Amorim, "Hardening Brazil's Soft Power," Project Syndicate (16 July 2013), 1–2, http://www.project-syndicate.org/commentary/a-more-robust-defense-policy-for-brazil-by-celso-amorim.

[109] Ibid.

transfer from the developed world to the developing world. In 1961, Brazil raised the issue of the role of patents on technology transfer to developing countries before the United Nations (UN) General Assembly. It advanced the argument that intellectual property laws in the developed world often denied developing countries the technology necessary to fully industrialize and close the income gap with those countries. As a result, the UN Secretary General commissioned a study to explore "the need to revise international treaties dealing with intellectual property, and to ensure that there is a specific framework on technology transfer that promoted their (the developing countries) access to existing technologies."[110] The Brazilian proposal was a key factor in the creation of the UN Conference on Trade and Development in 1964 and led to the formulation of a draft "International Code of Conduct on the Transfer of Technology" in 1985. Though the code has yet to be officially adopted by the UN, many of its key tenets continue to form part of international trade debates and have made their way in some form into international treaties.[111]

Brazil's argument regarding the importance of technology to development is in line with some economic theories on the subject.[112] For example, in his article "Globalization and Patterns of Development," Jeffrey Sachs attempts to explain the disproportionate distribution of the benefits of globalization, noting the importance technology can play in reducing this disparity. He classifies countries into five patterns of development related to their geography, economic policies,

[110] Padmashree Gehl Sampath and Pedro Roffe, *Unpacking the International Technology Transfer Debate: FiftyYears and Beyond,* Issue Paper 36 (Geneva: International Centre for Trade and Sustainable Development, 2012), 1, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2268529.

[111] Ibid., 4–7, 14–17.

[112] See Jeffrey D. Sachs, "Globalization and Patterns of Development," *Weltwirtschaftliches Archiv* 136, no. 4 (December 2000), 579-600; Gehl Sampath and Roffe, *Unpacking the International Technology Transfer Debate*, 4–7.

and resource developments. The five categories are: 1) endogenous growth; 2) catching-up growth; 3) resource-based growth; 4) Malthusian decline; and 5) economic isolation.[113]

Brazil, by Sachs's definitions, falls into the second category, catching-up growth, while the United States, falls into the first category of endogenous growth. Countries in the endogenous growth grouping generate a steady increase in income not based on capital accumulation, but on the basis of innovation. Countries in the catching-up growth grouping generally have a large base of human capital, have experienced capital inflows, and possess the industrial capacity to indirectly benefit from innovations. They do not, however, generate the same level of innovation as endogenous growth countries. Sachs notes that these countries are generally geographically proximate to innovators, making technological diffusion easier. Thus, though countries like Brazil have a lower level of technological innovation, they can often import technological advances from other countries and use their industrial capacity and large labor force to close income gaps with technologically advanced countries. Despite their growth and capacity to absorb new technologies, Sachs argues these countries must seek indigenous innovation in order to completely close the gap with countries in the endogenous growth pattern of development. This requires policies such as laws protecting intellectual property, government investment in science and technology, and creating economic institutions and laws that ensure greater technology transfer.[114] In line with Sachs's argument, current Brazilian policymakers recognize the importance of technology in the country's overall development, and by extension in its ability to catch up with the developing world in terms of its defense industry and its military modernization.

As with most Brazilian policy, there is economic motivation to transform its defense industry and modernize its military, such as job creation and profits from

[113] Sachs, "Globalization and Patterns of Development," 581–82.

[114] Jeffrey D. Sachs, "Globalization and Patterns of Development," *Weltwirtschaftliches Archiv* 136, no. 4 (December 2000), 581–91.

arms exports to other countries. This discussion takes on a greater significance, however, when one considers the importance of military power and defense technology to a country's grand strategy. Regarding the importance of defense capabilities and productive capacity, Michael Brzoska writes:

> The availability of weapons and the means to maintain them is a precondition for military policy and thus closely linked to the exercise of power and the conduct of war. A State without the means to produce the weapons deemed necessary to hold, and dependent on the importation of military goods, is in danger of not being able to conduct the kind of military policy it wants to pursue.[115]

In short, if a country wants to be able to formulate an independent policy, particularly in the military domain, the capacity and technology to produce the weapons it needs indigenously are key. Though Brazil considers itself a peaceful country, as noted in the END, and has traditionally relied on soft power, statements such as the one previously quoted from Minister Amorim make it clear that Brasília recognizes today the importance of defense capacity to the achievement of its national goals.

These ideas are prevalent among the political leadership involved in creating Brazil's foreign and defense policy under the Lula and Rousseff administrations. These leaders, who Thomaz Guedes da Costa calls the class of 1979, came into the government and military in the late 1970s and early 1980s, experiencing "a period of numerous international constraints on Brazil's foreign policy, from the oil crisis to debt negotiations, and the negative impact of technological relations with the United States under international control regimes."[116] The collective worldview among these policymakers, created by

---

[115] Michael Brzoska, "Spread of Conventional Weapons Production Technology," in *Arms and Technology Transfers: Security and Economic Considerations Among Importing and Exporting States,* ed. Sverre Lodgaard and Robert L Pfaltzgraff (New York; Geneva: United Nations Institute for Disarmament Research, and Institute for Foreign Policy Analysis, United Nations, 1995), 19.

[116] Thomaz Guedes da Costa, *Grand Strategy for Assertiveness: International Security and U.S.-Brazil Relations* (Miami: Center for Hemispheric Policy, University of Miami, 2010), 3, https://umshare.miami.edu/web/wda/hemisphericpolicy/Task_Force_Papers/Costa-Grand_Strategy_for_Assertiveness.pdf.

these common experiences in their formative years, is perhaps best captured in a statement by Samuel Pinheiro Guimarães, former Secretary-General of Brazil's Foreign Ministry and Secretary for Strategic Affairs in the last year of Lula's administration:

> The extraordinary international instability emanates essentially from the marginalization of peripheral states, that is, from the increasing gap of economic, technologic, military, and scientific power among states, and of the effort to preserve this situation. The powerful states are even more powerful and distant from the others.[117]

This worldview has led these policymakers to pursue a foreign policy aimed at increasing Brazil's influence in international politics as a means to close the gap between the core and the periphery, and its defense strategy has become an important piece of this foreign policy. As the Ministry of Defense (MoD) stated in 2009, "Capable of defending itself, Brazil will be in a position to say no when it has to say no. It will be able to build its own development model."[118] Military modernization, the revival of the defense industry, and the pursuit of robust technology transfer figure prominently in the Brazilian defense policy and are viewed as "intrinsically linked to national development."[119]

B. NATIONAL DEFENSE STRATEGY

The END serves as the primary guide to Brazil's defense policy. It can be viewed as the overall framework of this policy, outlining its key tenets and objectives. Technology and its importance in achieving Brazil's defense objectives are prevalent throughout the document.

The END begins with a discussion of the linkage between national defense and national development, stating that the strategy for one is inseparable from the strategy of the other. Technological independence is noted as a guiding principle in achieving both a strong national defense and

---

[117] Guedes da Costa, *Grand Strategy for Assertiveness*, 5.

[118] Ibid., 4.

[119] Amorim, "Hardening Brazil's Soft Power," 2.

development project: “National independence achieved by an autonomous technological capacity building, including the spatial, cybernetic and nuclear strategic sectors. Whoever does not master critical technologies is neither independent for defense nor for development.”[120] The linkage between defense and national development is not trivial. Brazilian politicians view national development as indispensable in Brazil’s pursuit to break into the top tier of global powers. If they view development of a strong national defense project, with technology as a driver and a critical factor in attaining that goal, there is a much stronger likelihood that the objectives and principles set forth in the END will be adhered to, particularly those involving the acquisition of technology.

Likewise, technology is an important piece of the document’s early discussion of the nature and scope of the END. The END focuses on three key objectives: 1) modernization and reorganization of the Brazilian military; 2) reorganization and revitalization of the Brazilian defense industry “in order to ensure that the equipment needs of the Armed Forces are met and be based on technologies that are domestically mastered”[121]; and 3) adoption of compulsory military service. Technology certainly has a role in achieving the first two objectives. Technology transfer in conjunction with arms purchases allows Brazil to potentially modernize more quickly and subsequently reduce its reliance on foreign products by incorporating obtained technology into its own defense production for use by its own military and for export. This being the case, obtaining and developing defense technology figure prominently throughout most sections of the END. Some important examples include:

- Under the END’s guidelines, there is a stated objective “To qualify the national defense industry so that it conquers the necessary autonomy in indispensable technologies to defense purposes.”[122] This is to be achieved by creating special regulatory and tax

[120]Luiz Inacio Lula Da Silva, Nelson Jobim, and Roberto Mangabeira Unger, *National Defense Strategy* (2008), http://www.defesa.gov.br/projetosweb/estrategia/arquivos/estrategia_defesa_nacional_ingles.pdf.

[121] Ibid., 10.

[122] Ibid., 18–19.

regimes that protect national defense companies, allowing them to compete with international firms, and by seeking defense partnerships aimed at "developing the technological capacity and the making of national defense products to gradually rule out the need to purchase imported services and products."[123]

- Under the Navy section, it states, "Brazil will maintain and develop its ability to design and manufacture both conventional and nuclear-propelled submarines. It will speed up investments and the necessary partnerships to run the nuclear-propelled submarine project."[124] The nuclear theme is expanded in the section on the strategic sectors, which notes that Brazil should aggressively pursue "the full nationalization and the development – at industrial scale – of the fuel cycle (including gasification and enrichment) and of the reactor construction technology for exclusive use of the country" and the development of nuclear power plants under national control.[125]
- Under the Army section, it discusses that service's primary role in monitoring and controlling the nation's territory and stresses the need to obtain and develop satellite and cybernetic technologies to do so.[126]
- Under the Air Force section, it notes, "The national defense industry will be instructed to give the highest priority to the development of the necessary technologies, including those that promote independence from the GPS system, or from any other alien positioning system."[127] Furthermore, it stresses the necessity to develop military and civilian personnel with technical knowledge "in order to reach technological independence." Finally, it notes that any procurement program to upgrade the Air Force's fighter fleet must include some form of offset in terms of technology transfer and licensed production in Brazil.[128]
- Under the section on the reorganization of the defense industry, the END notes that "the development of independent technological capacities"[129] is a guiding principle for that reorganization. Given that "technological blocks imposed by developed countries,

[123] Ibid., 18.

[124] Ibid., 21.

[125] Ibid., 33.

[126] Ibid., 25.

[127] Ibid., 28.

[128] Ibid., 30–31.

[129] Ibid., 34.

> delaying the strategic projects conceived by Brazil"[130] are signaled as one the main vulnerabilities of the country's defense structure, "linking the purchasing of defense products overseas to the substantial technology transfer, including through partnership arrangements for the research and manufacturing in Brazil of part of these products or their substitutes,"[131] is indicated as an essential part the defense reorganization project.

The noted examples are not meant provide an exhaustive list of all mentions of technology in the END, but are meant to demonstrate how technology and its importance are interwoven throughout various sections of the strategy, thus demonstrating the importance defense policymakers in Brazil assign to the technical realm. A study of the END reveals recognition among these leaders that the desired transformation of both the Brazilian armed forces and the industry that supports them will require foreign technological assistance in the near term and technological independence in the long term.

1. Criticism of the National Defense Strategy

Though the END is an important document, was lauded at the time of its release as evidence of a new era of consistent Brazilian defense policy dictated by the MoD, and should guide the country's future actions in the defense realm,[132] it is not without criticism or detractors. One criticism of the document relates to the fact that it was originally the product of a presidential decree law. Presidential decree laws in Brazil do not have to be approved by the Brazilian congress. As such, the Brazilian congress is not required to abide by or follow the strategy. In light of the fact that congress holds the purse strings, this can obviously be problematic, as it is under no obligation to allocate the funds needed to achieve the goals set forth in the END. Given this constraint, some academics have expressed doubt the document's utility in truly understanding

[130] Ibid., 42.

[131] Ibid., 44–45.

[132] Janie Hulse, "Brazilian Military's White Paper to Guide Future Defense Priorities," Diálogo, 17 June 2011, http://dialogo-americas.com/en_GB/articles/rmisa/features/regional_news/2011/06/17/aa-brazil-white-paper.

Brazilian efforts in the defense arena.[133] The END was, however, approved by the Brazilian Congress in September 2013, and Thomas Bruneau notes that this development may improve the MoD's ability to achieve the goals set forth in the strategy.[134]

Another criticism of the END relates to the Brazilian defense budget and defense spending. The objectives in the END are ambitious and require a consistent level of defense spending. While Brazil continues to be the largest spender on defense in Latin American, with its spending representing more than 51 percent of total spending in the region, its growth in spending in 2012 was a mere 1.5 percent, compared to the regional average of 4.4 percent.[135] Furthermore, despite statements from defense officials such as Minister Amorim that Brazil's defense spending should increase gradually to approximately two percent of its gross domestic product (GDP) to meet its defense objectives, in 2012 and 2013, spending stood at merely 1.2 percent of GDP and appears on track to continue at that level through 2017 due to slowing of the Brazilian economy and focus on other national priorities.[136] Additionally, the Brazilian defense budget is heavily burdened by personnel costs. Approximately 75 percent of the budget is consumed by these costs, with 50 percent going to paying the pensions of retired military personnel and another 25 percent going to pay the salaries of active personnel. Another 15–17 percent is allocated to

---

[133] Thomas Bruneau, "NS3578: Society, Politics, and Security in Contemporary Brazil" (class lectures, Naval Postgraduate School, Monterey, CA, summer 2013).

[134] Ministério de Defesa, "Câmara aprova Política Nacional de Defesa, Estratégia Nacional de Defesa e Livro Branco," 12 September 2013, http://www.defesa.gov.br/index.php/ultimas-noticias/8801-12-09-2013-defesa-camara-aprova-politica-nacional-de-defesa-estrategia-nacional-de-defesa-e-livro-branco; Thomas Bruneau, "NS3079: Directed Study: Brazilian Defense and Nuclear Policy" (class discussion, Naval Postgraduate School, Monterey, CA, winter 2014).

[135] "Chapter Eight: Latin America and the Caribbean," *The Military Balance* 113, no. 1 (2013), 421, http://dx.doi.org/10.1080/04597222.2013.757004.

[136] Matthew Smith, "IHS Jane's Navigating the Emerging Markets: Brazil," *IHS Jane's Defence Industry and Markets Intelligence Centre*, January 2014, 17–19, https://janes.ihs.com.libproxy.nps.edu/ExternalItems/Janes/images/binder/jiq/jiq02/data/jiq0095_a.pdf.

operational costs, thereby leaving roughly 13–15 percent to be spent on the procurement and R&D initiatives that figure prominently in the END.[137]

Despite the aforementioned critiques, there are reasons to believe that at least the procurement, technology transfer, and defense industry related objectives of the END will be pursued and dictate future defense policy. For example, recent cuts in Brazilian defense spending have been taken out of primarily operational costs, with procurement spending being kept at consistent levels. Additionally, the military's procurement budget increased from approximately U.S. $3.7 billion in 2012 to U.S. $4.4 billion in 2013. Furthermore, defense procurement budgets are being propped up by off-budget funds. The Brazilian MoD announced in 2012 that the government had allocated an additional U.S. $733 million for defense equipment procurement from the country's U.S. $4 billion Accelerated Growth Program. The Brazilian Financing Agency for Innovation also promised to invest U.S. $1.43 billion in the defense industry from 2013 to 2017 to support defense technology development. Finally, in 2012, Brazilian lawmakers passed Law 12.598/2012, establishing the Special Tax Regime for the Defense Industry. Under the law, companies deemed to be strategic defense companies enjoy special tax breaks for a defined period and export credit guarantees.[138] These facts, along with Brazil's offset policy and the Brazilian defense industry's importance to its grand strategy, lend credence to the END's position as a credible policy document.

C. OFFSET POLICY

Regarding the procurement of defense products, the END states that the goal is to:

> (a) optimize the expenditure of funds; (b) ensure that purchases comply with the guidelines of the National Defense Strategy and its development over time; and (c) ensure, in purchase decisions, the

[137] Smith, "IHS Jane's Navigating the Emerging Markets: Brazil," 18.

[138] Ibid., 17–19, 32.

> primacy of commitment to the development of technological capabilities in national defense products.[139]

One way that Brazil achieves this stated goal is through its offset policy. In DOD parlance, offset is defined as:

> A general type of industrial or commercial compensation practice required of a contractor by a purchasing government as a condition for the purchase of defense articles/services. The form of compensation, which generally offsets a specific percentage of the cost of the purchase, is directly associated with the items purchased, such as the production of components in the purchasing country for installation in the purchased end-item.[140]

In short, offset is the practice in procurement of structuring purchase contracts so that some form of compensation offsets the cost of the items being purchased. Through offset in the form of technology transfer and industrial participation from foreign forms with Brazilian strategic defense companies, Brazil aims to improve its domestic defense industry and achieve technological independence in the defense realm. An effective offset policy can ensure Brazil is able to achieve its military and defense industry modernization projects even in a fiscally constrained environment.

The MoD and the military services prioritize offset in all major procurement programs, and the government has taken steps in recent years to codify and consolidate this practice. Offset is required for any procurement contract valued over U.S. $5 million, and the goal is always for the offset return to be 100 percent of the value of the contract, though this is not currently mandated by law. In 2009, a decree amending the 2008 END mandated that "substantial elements of R&D must take place within Brazil for all defense equipment procured from foreign companies."[141] Additionally, in 2013, Brazil announced plans to establish the Defense Trading Organization, under the MoD; it is expected to be stood up

---

[139] Smith, "IHS Jane's Navigating the Emerging Markets: Brazil," 23.

[140] DSCA, *DSCA Manual 5105.38-M: Security Assistance Management Manual (SAMM)*, ESAAM Glossary, http://www.samm.dsca.mil/listing/esamm-glossary.

[141] Smith, "IHS Jane's Navigating the Emerging Markets: Brazil," 29.

officially in 2014 and will act as the central coordinating body for defense-related offset programs, replacing the current structure that allows the services to manage offsets for their individual procurement programs. Finally, competition for Brazil's largest procurement programs reveals its emphasis on offset. For example, the three finalists for Brazil's F-X2 fighter program all included substantial technology transfer and licensed production as part of their bids, as well as cooperation in other Brazilian defense projects such as Embraer's KC-390 transport/tanker program.[142]

D. BRAZILIAN DEFENSE INDUSTRY AND GRAND STRATEGY

The Brazilian arms industry emerged in the 1960s, before which time Brazil imported the bulk of its military equipment from the United States. U.S. preoccupation with Southeast Asia and its denial of certain weapons systems to Brazil, led Brazilian policymakers to recognize a need for greater autonomy in arms production in order to meet the needs of its own military. The initiative to build the industry was also driven by the prospect of economic benefits from the export of defense goods. The defense industry grew significantly in the 1970s and 1980s, primarily based on the export of weapons systems to the Middle East. Regarding the industry's success in that era, Luis Bitencourt notes:

> The reason they got that market was mainly due to good sales packages, to offer low or medium technological weapons, and . . . the sales were not based on any ideological or political position, nor did the sales' contracts impose any constraints on the use of the equipment.[143]

Against this backdrop, Brazil became the largest exporter of wheeled armored vehicles and ranked in the top 10 of arms exporters in the late 1980s.[144]

---

[142] Ibid., 29–31.

[143] Luis Bitencourt, The Problems of Defence Industrialization for Developing States," in *Arms and Technology Transfers: Security and Economic Considerations Among Importing and Exporting States,* ed. Sverre Lodgaard and Robert L. Pfaltzgraff (Geneva: United Nations Institute for Disarmament Research, and Institute for Foreign Policy Analysis, United Nations, 1995), 214.

[144] Ethan B. Kapstein, "The Brazilian Defense Industry and the International System," *Political Science Quarterly* 105, No. 4 (Winter, 1990–1991), 579, http://www.jstor.org/stable/2150936.

The end of the Iran-Iraq war along with the Persian Gulf War and Desert Storm proved nearly disastrous to the Brazilian defense industry. Iraq defaulted on repayment of its loans to Brazilian defense firms, eventually leading Engesa—once the largest Brazilian defense firm—to declare bankruptcy in 1993. The use and effectiveness of high tech weapons employed by the U.S. military in Desert Storm and the Persian Gulf War caused a shift in demand in the export market, away from the low to medium-tech weapons being produce in Brazil. From that time forward, United States dominated the Middle East market, and other suppliers with high-tech weaponry took over Brazil's market share. As of 2011, Brazil was ranked twenty-seventh in the world among arms exporting countries with a mere 0.1 percent of the worldwide exports compared to a combined 59.6 percent held by the United States and Russia (see Table 1).[145]

[145] Ibid., 591; Bitencourt, "The Problems of Defence Industrialization for Developing States," 170–71; Smith, "IHS Jane's Navigating the Emerging Markets: Brazil," 34; Ministério de Defesa, *Livro Branco de Defesa Nacional,* 2012, 212, http://www.defesa.gov.br/arquivos/2012/mes07/lbdn.pdf.

Nº	País Exportador	% Exportações do Mundo[76]
1	Estados Unidos	33,3
2	Rússia	26,3
3	França	8,1
4	China	4,5
5	Alemanha	4,0
6	Reino Unido	3,6
7	Itália	3,5
8	Espanha	3,1
9	Suécia	2,3
10	Países Baixos	1,8
27	Brasil	0,1

Table 1. Brazil's Ranking Among the World's Major Arms Exporters[146]

In "The Brazilian Defense Industry and the International System," Ethan Kapstein argues that the development of the Brazilian defense industrial base was not based solely on economic considerations, but was intrinsically linked to the country's international aspirations. He writes:

> The industry developed as a manifestation of Brazil's self-conscious attempt to become an independent force in world politics and *primus inter pares* in the Third World context. . . . In short, Brazil has viewed an indigenous arms industry as crucial to its project of building political power.[147]

Brazil's current efforts to transform the industry through the acquisition and development of advanced technologies, while certainly economically motivated in

[146] Ministério de Defesa, *Livro Branco de Defesa Nacional*, 212.

[147] Kapstein, "The Brazilian Defense Industry and the International System," 595.

part, should be viewed with the same lens. Revitalizing this once robust industry is an enabler in Brazil's grand strategy.

Brazil's grand strategy, in the words of Hal Brands, consists of hastening "the transition from the dominance of the developed world to a multipolar order in which international power balances and institutions are more favorable to the assertion of Brazil's interests."[148] In essence, it entails efforts to secure Brazil's place as a global power. In accordance with this strategy, Brazil has pursued certain initiatives that it believes will help it achieve this goal to include accumulating traditional hard power capabilities, creating partnerships with its South American neighbors to enhance its leadership in the region, and lobbying for a permanent seat on the UNSC.[149]

Brasília's efforts to revitalize its defense industry though technology transfer can certainly help in these areas. In terms of hard power accumulation, the connection is obvious. With a robust domestic defense industry, Brazil will be in a position to acquire for its armed forces any weapons system it deems necessary for its national defense. It will not be reliant on technology from other countries, but will be capable of producing high-technology equipment on par with that produced in the developed countries.

A transformed, high-tech defense industry also supports Brazil's efforts at creating partnerships through the sale of Brazilian weapons systems to its neighbors. Just as the United States seeks to sell its weapons systems to countries in the region in order to help partner nations acquire and develop the capabilities they need to defend themselves, fosters relationships that can be called upon in times of conflict, and increases interoperability with U.S. forces, Brazil can feasibly do the same in an environment where its defense industry is producing equipment at the technological level desired by other nations in the region. Brazil could perhaps become the region's preferred partner, particularly

[148] Hal Brands, *Dilemmas of Brazilian Grand Strategy* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2010), 3.

[149] Ibid., 13–29.

since its weapons sales have imposed fewer constraints on purchasing nations in terms of employment of the equipment.

Finally, a defense (and civilian) industry with the technology to master the nuclear fuel cycle could bolster Brazil's bid for a permanent seat on the UNSC. This does not mean Brazil will try to develop a nuclear weapon, particularly since this is constitutionally prohibited. However, there is certainly a perception among some Brazilians regarding the importance of obtaining nuclear capabilities to the country's world power aspirations. As the Brazilian Navy's Chief of Staff stated in 2008, "Those who have nuclear submarines sit on the United Nations Security Council. All permanent members have the technology, which none of them give up. We have to develop our own."[150] Along the same vein, Fabian Callé, a security specialist with close ties to the Brazilian defense establishment, noted of the emphasis on nuclear power in the 2012 Brazilian defense white paper, "This will send a message that Brazil has the capability to produce nuclear weapons, thereby matching world powers and making it worthy of a permanent seat on the UN Security Council."[151] Though there is no guarantee that Brazilian mastery of nuclear technology will guarantee an elevated status in the UN, it is clear from statements such as these that a hope that such is the case influences Brazilian policymakers and drives their desire for greater technology transfer.

E. CHAPTER SUMMARY

This chapter provided an overview of Brazilian defense policy and the role of defense technology transfer in that policy. It noted that a study of Brazil's defense policy reveals a recognition among its leaders that the desired transformation of both the Brazilian armed forces and the industry that supports them will require foreign technological assistance in the near term and technological independence in the long term. In concluded that despite criticism of and skepticism regarding the Brazilian END, it is a credible policy document

[150] Brands, *Dilemmas of Brazilian Grand Strategy,* 15.

[151] Hulse, "Brazilian Military's White Paper to Guide Future Defense Priorities."

and is driving defense activities in Brazil. While economically motivated, Brazil's efforts to revitalize its defense industry via technological acquisition and development is best understood in the larger context of Brazil's grand strategy of securing the country's place among the global powers.

THIS PAGE LEFT INTENTIONALLY BLANK

IV. KEY UNRESOLVED ISSUES IN US-BRAZIL SECURITY COOPERATION AND TECHNOLOGY TRANSFER

During an October 2010 colloquium, entitled "Brazil's Security Strategy and Defense Doctrine," former Brazilian Defense Minister Nelsom Jobim discussed Brazil's defense policy and strategy as set forth in the END. At the meeting Jobim noted that the three principles elements the country hoped to develop were advanced technologies, a space program, and a peaceful nuclear capacity; he stressed the point that:

> Brazil is not a country that 'buys' hardware, but enters joint venture agreements with shared production responsibilities and technology transfer, so that in the future it may independently produce its own military equipment. Both the space and nuclear programs are inexorably linked to the development of advanced technologies.[152]

Included in the technologies Brazil hopes to acquire and develop is advanced aviation technology, as noted in the previous chapter. As the nuclear and aviation realms are key areas for development in Brazil's defense strategy, this chapter will explore cooperation (or lack thereof) between the United States and Brazil in those two areas. This focus should shed light on the reasons behind differing perceptions regarding technology transfer by policymakers in both countries. Following the case presentation, the thesis's conclusion will be presented.

A. NUCLEAR

Brazil's interest in enhancing its nuclear capacity is not a recent development. The country began developing this capacity more than 60 years ago, initially with significant assistance from the United States, including the provision of nuclear technology. Numerous factors drove the industry's development, including Brazil's rivalry with Argentina, its energy needs for autonomy or self-sufficiency, its world power aspirations, and the Brazilian

[152] Andrew Fishman and Max Manwaring, "Brazil's Security Strategy and Defense Doctrine," 3 March 2011, Strategic Studies Institute, 2, http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=1049.

Navy's interest in nuclear submarines, to name a few.[153] Brazilian interest in its nuclear capacity intensified in 1951, when Argentine President Juan Perón falsely declared that scientists in his country had mastered the thermonuclear process. From that point forward, Brazilian scientists began experimenting with nuclear fission, and the government took greater interest in the industry with the creation of the National Research Council (*Conselho Nacional de Pesquisas*) in 1951 and the establishment of an official nuclear research program under said council. Other key institutions were established in the late 1950s to conduct nuclear research and train personnel.[154]

U.S. assistance helped advance the industry in its early days and up through the early 1970s. Following the discovery of vast uranium resources, Brazilian President Getulio Vargas signed a number of agreements with the United States in the 1940s to jointly exploit these resources in exchange for the provision of U.S. nuclear technology. Though the United States blocked the shipment of three West German ultra-centrifuges to Brazil in the early 1950s, in 1955 it signed an agreement with Brazil under the Atoms for Peace program that allowed Brasília to purchase several research reactors. Finally, in 1971, Brazil contracted with the U.S. firm Westinghouse to construct Brazil's first nuclear power reactor, the 626-megawatt Angra I, in Angra dos Reis, Rio de Janeiro.[155]

U.S. support for the Brazilian nuclear program wavered in the mid-1970s, and it ceased to transfer nuclear technology to Brazil and actively blocked the efforts of other countries to do so. This was related primarily to two factors: India's 1974 nuclear test and the 1978 U.S. Nuclear Nonproliferation Act. India's test caused Washington to review "its nuclear policy regarding the transfer of

[153] Barletta, ''The Military Nuclear Program in Brazil,'' 13–17.

[154] Sharon Squassoni and David Fite, ''Brazil's Nuclear History,'' Arms Control Association, October 2005, http://www.armscontrol.org/act/2005_10/Oct-Brazil-History; Diego Santos Vieira de Jesus, "The Brazilian Way," *The Nonproliferation Review* 17, no. 3 (October 2010), 552–53, DOI: 10.1080/10736700.2010.517003.

[155] Ibid.

sensitive nuclear material to developing countries,"[156] eventually leading to the passing of the Nuclear Nonproliferation Act, which required full-scale safeguards on any nuclear transfer from the United States. Additionally, as noted in Chapter II, pressure from the Carter administration on Brazil's military government and the linking of U.S. security assistance to a favorable human rights record further diminished U.S. support for Brazil's nuclear program.

Given these constraints, Brazil was forced to look to other countries besides the United States, who had been its preferred partner, for the technology and equipment it needed to build its nuclear capacity. After a series of secret negotiations, Brasília announced in 1975 that it had reached an agreement with West Germany "for a complete nuclear fuel cycle: the construction of two nuclear power reactors (and plans for six more in Brazil by 2000) and facilities for uranium processing, conversion, enrichment, and reprocessing."[157] The deal did not yield the desired results, however, as the West German technology proved to be somewhat unreliable, and the United States, which reacted strongly against the deal, effectively pressured West Germany to require full nuclear safeguards from Brazil. Further limiting Brazil's ability to develop its program was the full implementation of the U.S. Nuclear Nonproliferation Act. As Sotomayor writes, "This contributed to a virtual embargo on suppliers for Brazilian and Argentine nuclear industries, irritating both countries in the Southern Cone and engendering suspicion in Brazil toward the United States."[158] By 1979, the act's requirement that Brazil accept more extensive nuclear safeguards had effectively nullified the country's deal with Westinghouse to provide fuel and technology for Angra I. Brazil ultimately determined that the United States could not be counted on as a nuclear partner and endeavored to create a secret, parallel nuclear program run by the military.[159]

---

[156] Sotomayor, "Brazil and Mexico in the Nonproliferation Regime," 88.

[157] Santos Vieira de Jesus, "The Brazilian Way," 554.

[158] Sotomayor, "Brazil and Mexico in the Nonproliferation Regime," 88.

[159] Ibid.; Squassoni and Fite, ''Brazil's Nuclear History"; Barletta, ''The Military Nuclear Program in Brazil,'' 14–15.

U.S. application of the MTCR is another area related to the nuclear arena where U.S. policy has acted to constrain Brazilian initiatives. As discussed in Chapter II, the MTCR is a multilateral agreement under which signatories agree to control the proliferation of "unmanned delivery systems capable of delivering weapons of mass destruction,"[160] and the regime's guidelines indicate a strong presumption to deny transfers of the most sensitive items described in the agreement. In *Brazil, The United States, and The Missile Technology Control Regime,* Scott Tollefson analyzes Brazil's efforts to develop ballistic missiles for its space program and the effect of U.S. policy on this effort. As with Brazil's nuclear program, the United States aided in the early development of the Brazilian space program, providing research rockets in the mid 1960s as well as technological and financial support for the Aerospace Technical Center and the National Institute of Space Research.[161]

However, concerns over Brazil's nuclear efforts in the late 1970s and 1980s and its policy of placing few end-use restrictions on its weapons sales caused a shift in U.S. support for the program. Policymakers in Washington applied the guidelines of the MTCR in the strictest fashion, effectively denying the export of all rocket and ballistic missile technology covered in Categories I and II of the agreement, due to concerns that this technology would allow Brazil to develop missiles capable of delivering nuclear warheads. Brazilian officials criticized the regime, complaining that it made it impossible "to count on arranging the transfer of the most modern foreign technology for the development of a medium-range missile."[162] Further exacerbating matters, other signatories of the agreement, such as France and West Germany, proved willing to interpret the MTCR more loosely than the United States, thus casting U.S.

---

160 "Introduction," Missile Technology Control Regime, accessed 27 February 2014, http://www.mtcr.info/english/index.html.

161 Scott Tollefson, *Brazil, The United States, and The Missile Technology Control Regime,* technical report NPS-56-90-006 (Monterey, CA: Naval Postgraduate School, 1990), 29–30, http://hdl.handle.net/10945/28873.

162 Ibid., 6.

application of the agreement in a more negative light.[163] Tollefson concludes that the United States' choice to strictly apply the MTCR had:

> 1) Strained Brazilian security relations with the United States; 2) weakened U.S. influence over Brazil's rocket and missile programs; 3) strengthened Brazilian ties with European suppliers (especially France) of space and missile technology; 4) driven Brazil into closer technological cooperation with the PRC and the Soviet Union; and 5) intensified Brazilian negotiations with Iraq and Libya.[164]

Brazil's recent choice of partner for its nuclear submarine program supports Tollefson's conclusion. When seeking partnership on submarine construction in January 2008, Jobim visited France and Russia, not the United States. Brazil ultimately chose France as its partner for submarine construction, particularly because of its "readiness to transfer submarine design technology."[165] The deal with France includes the construction of four conventional submarines and one nuclear submarine (with design technology included) as well as a joint venture with a Brazilian firm to build a new shipyard and naval base for nuclear submarines. The deal does not include the transfer of the nuclear reactor technology itself, such as "the design, construction and putting into operation of the on-board nuclear reactor, the installations in the nuclear reactor compartment, and the equipment and facilities whose functions are primarily concerned with the reactor's operation or nuclear safety;"[166] these will have to come from the Brazilian Navy's own nuclear program. Nevertheless, Brazil's choice of France and its decision to not seek U.S. partnership for its submarine program underscore the relationship between the Washington and Brasília in the nuclear arena. In sum, Brazil does not consider the United States to be a reliable partner on its nuclear initiatives, be they civilian or military in

---

[163] Ibid., 2–7, 15–17.

[164] Ibid., 92.

[165] Sarah Diehl and Eduardo Fujii, "Brazil's New National Defense Strategy Calls for Strategic Nuclear Developments," Nuclear Threat Initiative, 30 October 2009, http://www.nti.org/analysis/articles/brazils-new-defense-strategy/.

[166] Ibid.

nature. This is due to U.S. efforts in the past to block Brazil's nuclear aspirations, some of which have been outlined earlier in this section.

B. AVIATION

U.S. efforts to cooperate with Brazil and transfer technology in the aviation realm in recent years have been more positive than those in the nuclear arena. Most of these efforts have been related to Brazil's FX-2 program. Beginning in the early 1990s, the Brazilian Air Force launched the program to replace its aging fleet of Mirage fighter aircraft with a fifth generation fighter. The program intensified during the Lula administration and particularly after the release of the END in 2008, with its emphasis on military modernization and advanced technology. As part of the program, Brazil looked to make an initial purchase of 36 fighter aircraft, with potential for up to 100; in return, it sought significant technology transfer from all bidders as well as production in Brazil in order to meet the stated goals of the END to acquire and develop advanced technologies to reduce its dependence on other countries and revive its defense industrial base. By the end of 2008, the bidding process had narrowed to three competitors: the French Dassault Rafale, the Swedish Saab Gripen NG, and the U.S. Boeing F-18 Super Hornet.[167]

By 2009, the U.S. bid appeared to be a distant third behind the French and Swedish options. Lobbying efforts by President Sarkozy, offers of substantial technology transfer, the submarine deal with Brazil, and willingness to support Brazil's leadership aspirations in multilateral forums, all seemed to favor France as Brazil's partner of choice. The Swedish bid, meanwhile, also included substantial technology transfer and offered a significantly lower cost of U.S. $4.5 billion, compared to U.S. $8 and U.S. $7 billion for the French and U.S. options

[167] "Chapter Eight: Latin America and the Caribbean," 422; Kenneth Rapoza, "Brazil Chooses Saab Fighter over F-18 Super Hornet," Forbes, 19 December 2013, http://www.forbes.com/sites/kenrapoza/2013/12/19/brazil-chooses-saab-fighter-over-f-18-super-hornet/; Brian Winter, "Exclusive: Brazil Closer to Boeing on Jets Deal after Biden Visit," Reuters, 4 June 2013, http://www.reuters.com/article/2013/06/04/us-brazil-jets-idUSBRE9531AC20130604.

respectively. Additionally, both the French and Swedish governments had agreed to purchase KC-390 transport aircraft from Brazil's Embraer in return for selection for the fighter deal. By contrast, the Boeing bid was hampered by a 2006 U.S. decision to veto the sale Brazilian Super Tucano aircraft to Venezuela due to the presence of U.S. technology in the aircraft. This action certainly gave Brazilian officials pause regarding U.S. commitments to technology transfer in Boeing's bid. The Lula administration appeared poised to give the contract to France in 2010.[168]

By 2011, however, the U.S. bid was back in the running. Financial challenges leading to cuts in the Brazilian defense budget left the decision unmade prior to Lula leaving office. President Rousseff chose to review all three offers anew upon taking office, and U.S. officials and Boeing took advantage of more time to bolster the F-18 bid. At various high-level meetings, U.S. officials—including President Obama, Vice President Biden, Secretary of State Clinton, and Secretary of Defense Panetta—lobbied the Brazilian government on behalf of the Boeing proposal. In April 2012, Panetta promised "the U.S. would permit significant technology transfers only reserved for our closest allies and partners if Boeing won the competition,"[169] and in June 2013, Biden assured President Rousseff that "the U.S. Congress was likely to respect Boeing's agreement to transfer sensitive technology to Brazil as part of the deal."[170] For its part, Boeing also made efforts to bolster the bid and demonstrate its commitment to assist Brazil in achieving its strategic objectives. It established an office in Sao Paulo in 2011, headed by former U.S. ambassador to Brazil Donna Hrinak, and, following Panetta's visit, it announced plans to establish an aerospace research facility in Brazil as part of a partnership agreement with Embraer. Also as part of the agreement, Boeing agreed to work with Embraer to improve safety, efficiency,

168 "Chapter Eight: Latin America and the Caribbean," 422; Smith, "IHS Jane's Navigating the Emerging Markets: Brazil," 15; Guedes da Costa, *Grand Strategy for Assertiveness*, 11.

169 "Chapter Eight: Latin America and the Caribbean," 422.

170 Winter, "Exclusive: Brazil Closer to Boeing on Jets Deal after Biden Visit."

and operational costs, supply weapons systems for Embraer's Super Tucano aircraft, and collaborate with Embraer on its KC-390 program, including the sharing of technical know-how. These efforts, coupled with the cooperative defense agreements signed between the two countries noted in Chapter I, elevated the F-18 bid's status, and by mid 2013, Brasília appeared close to selecting the U.S. aircraft.[171]

However in late 2013, the Brazilian government announced it had selected the Saab Gripen NG for the FX-2. Defense Minister Amorim justified the decision stating, "The choice was the object of much study and careful consideration, and took into account performance, effective technology transfer and costs, both for acquisition and maintenance. The choice was based on these three factors."[172] Despite Amorim's claim, there is little doubt that the allegations of the U.S. National Security Agency (NSA) spying on Brazilian officials undermined the U.S. bid and thus made the decision a political one as much as a technical one. As former Brazilian trade secretary commented following the announcement, "Boeing only didn't win the deal because of the lack of trust created by the spying incident. . . . Had the decision been last year, Boeing would have won."[173] Apparently, Boeing had overcome the challenges related to technology transfer with its bid for the FX-2, but the fallout from the NSA spying revelations had made choosing the U.S. option untenable for Brazilian officials.

The preceding section demonstrated the positive steps the United States has made in recent years to cooperate with Brazil in the aviation realm. These steps have included a willingness to transfer significant technology from U.S. aircraft that has traditionally only been transferred to its closest partners such as

---

[171] "Chapter Eight: Latin America and the Caribbean," 422, 429; Winter, "Exclusive: Brazil Closer to Boeing on Jets Deal after Biden Visit"; Alonso Soto and Brian Winter, "Saab Wins Brazil Jet Deal after NSA Spying Sours Boeing Bid," Reuters, 18 December 2013, http://www.reuters.com/article/2013/12/18/us-brazil-jets-idUSBRE9BH11C20131218.

[172] Rapoza, "Brazil Chooses Saab Fighter Over F-18 Super Hornet."

[173] Raymond Colitt and Arnaldo Galvao, "Saab Wins $4.5 Billion Brazil Order as Spat Hurts Boeing," *Bloomberg News*, 19 December 2013, http://www.bloomberg.com/news/2013-12-18/brazil-will-decide-today-on-4-billion-jet-fighter-contract.html.

members of NATO. Thus, in recent years, one could argue that the U.S. has demonstrated that it can be a reliable partner for Brazil in defense cooperation.

C. CONCLUSION

As stated at the outset, the goal of this thesis has been to understand the nature of the challenge of technology transfer between the United States and Brazil and its effect on bilateral security cooperation. Since 2010, the two countries have made efforts to expand security cooperation with the signing of a DCA, a GSOMIA, and the establishment of a DCD. Yet despite these positive steps, the issue of technology transfer threatens to impede the progress of U.S.-Brazil security cooperation, with Brazilian leadership lamenting U.S. unwillingness to transfer defense technology to Brazil, and U.S. policymakers citing figures and efforts that seem to indicate just the opposite.[174]

Chapter I of the thesis provided an introduction, an overview of the U.S.-Brazil bilateral relationship, and some of the historic and current sources of friction in said relationship. As noted, the relationship between the U.S. and Brazil, while very close at times, has been fraught with unmet expectations and misunderstandings on both sides. The issue over defense technology transfer is essentially a byproduct of this complicated relationship. Understanding this issue is important because finding common ground on technology transfer is something both sides desire and could lead to mutual security and economic benefits. In a fiscally constrained environment where the U.S. government is cutting back on defense expenditures, greater technology transfer to Brazil should result in greater sales for U.S. defense companies and help maintain the defense industrial base in the United States. Brazilian purchase of U.S. military equipment would increase interoperability between the two countries and could lead to additional training and exchange opportunities that would likely enhance the bilateral relationship, at least at the military-to-military level. For Brazil, it

[174] White House, "Fact Sheet: U.S.-Brazil Defense Cooperation," 9 April 2012, http://www.whitehouse.gov/the-press-office/2012/04/09/fact-sheet-us-brazil-defense-cooperation.

helps them build up their industrial base, potentially creating more employment and wealth generated from authorized third-party sales, and supports the country's grand strategy of seeking greater autonomy and increasing its status among the world powers.

Chapter I also presented three potential explanations for differing views regarding this issue. The first explanation was that U.S. policymakers are correct, that the United States is more than willing to transfer significant technology to Brazil, and that the issue is simply a Brazilian ideation. The second hypothesis was that Brazilian policymakers are correct, that the United States is unwilling to readily transfer defense-related technology to Brazil, and that it carefully keeps the most advanced technology from being transferred. The third explanation was that both sides are partially wrong (or right) due to misperception of the other's intentions and actions. This thesis concludes that the best explanation for the challenge of greater Brazil-U.S. security cooperation vis-à-vis technology transfer is the third one, that of misperception. The information presented in subsequent chapters bears this out.

Chapter II provided an overview of U.S. policies that have a bearing on defense technology transfer. It concluded that the transfer of arms and technology is a sensitive issue, as the decision to do so involves the difficult task of balancing often-competing goals of national security, foreign policy, and economic prosperity. Additionally, this type of SA is regulated by a robust domestic export control system as well as multiple multilateral control regimes. U.S. presidents over the years have used the provisions of the export control system to formulate their own arms transfer policies and justify restricting exports to some regions while permitting them to others in accordance with their foreign policies. Thus, while it is certainly constrained to a large extent by the laws in place governing transfers of certain arms and technology, it is not difficult for one to see how would-be importers of advanced arms and technology such as Brazil could believe that the United States is deliberately holding back certain technologies from them based on historical antecedents.

Chapter III provided an overview of Brazilian defense policy and the role of defense technology transfer in that policy. It noted that a study of Brazil's defense policy reveals a recognition among its leaders that a desired transformation of both the Brazilian armed forces and the industry that supports them will require foreign technological assistance in the near term and technological independence in the long term. Brazil's current efforts to transform its defense industry through the acquisition and development of advanced technologies, while certainly economically motivated in part, is viewed as an enabler in achieving the goals of Brazil's grand strategy.[175] A transformed, technologically advanced Brazilian defense industry would allow Brazil to acquire any weapons system it deems necessary for its national defense, support its efforts at creating partnerships through the sale of Brazilian weapons systems to its Latin American neighbors, and could bolster its bid for a permanent seat on the UNSC. Thus, any effort by the United States or any other country that is perceived to block or hinder Brazil in obtaining or developing the key technologies identified in the END will certainly be poorly received, breed mistrust and discontent, and impede the construction of a closer security relationship. Conversely, Brazil's traditional "no-strings" attached approach to arms sales appropriately garners some reticence to authorize sensitive technology transfers among U.S. policymakers, particularly in the absence of a ratified GSOMIA.[176]

The preceding sections of this chapter compared nuclear and aviation cooperation between the United States and Brazil, key areas for development identified in Brazil's defense strategy. This comparison is particularly helpful in understanding the difference in perceptions in both countries regarding technology transfer. As noted in Chapter I, Robert Jervis argues that what political actors learn from key historical events, largely determines the way they interpret new information. Thus, actors will often struggle to assimilate new information that does not support their prevailing view, and may either ignore it or

[175] Brands, *Dilemmas of Brazilian Grand Strategy,* 10–29.

[176] Kapstein, "The Brazilian Defense Industry and the International System," 587.

manipulate it to fit their established beliefs. Second, he posits that events are more likely to shape present perceptions if they occurred in the "recent rather than the remote past."[177] Both of these aspects of misperception are likely at play in the Brazil-U.S. security relationship.[178]

In the nuclear realm, U.S. support for Brazilian nuclear aspirations has been fragmented and unpredictable, going from early support to build the industry, to openly blocking Brazilian efforts to procure the necessary equipment and technology to reach its nuclear goals for civilian and military applications. While this behavior was justified by U.S. fears that Brazil would develop a nuclear weapon, it must be understood that this historical backdrop informs the way Brazilian policymakers view the technology transfer issue. By contrast, U.S. cooperation efforts related to aviation in the past five years, particularly in conjunction with Boeing's bid for the FX-2 contract, have shown a commitment to transfer unprecedented levels of high technology to Brazil. It is through the lens of these efforts that many U.S. policymakers view the technology transfer issue. Thus this thesis concludes that historical events in its relations with Washington make it difficult for Brasília to accept more recent U.S. efforts to enhance security cooperation and facilitate technology transfer on their face, while these same efforts cause U.S. policymakers to discount the importance of past indifference towards or overt efforts to block Brazil in obtaining certain technologies.

As Guedes da Costa writes:

> Mistrust seems to be at the core of the bilateral relationship, and U.S. policy-makers need to ask what can be done to overcome it. Brazilian policy-makers, at least those that are in power right now, have made up their minds about 'strategic relations' between the United States and Brazil: the U.S. is not the partner of choice.[179]

Finding common ground on the technology transfer issue could certainly change the state of affairs described above. Doing so, however, will likely take a

[177] Robert Jervis, "Hypotheses on Misperception," *World Politics* 20, no. 3 (1968): 472.

[178] Ibid.; Jervis, *Perception and Misperception in International Politics*, 220.

[179] Guedes da Costa, *Grand Strategy for Assertiveness*, 12.

more concerted effort on the part of both Brazilian and U.S. policymakers. Ratification of the DCA and the GSOMIA by the Brazilian Congress can certainly facilitate movement on this issue. For their part, U.S. political leaders cannot allow themselves to be deterred by the failure of the Boeing FX-2 bid, but should continue to seek further cooperation in the aviation realm, even in the face of a challenging political relationship caused by the NSA spying revelations. Additionally, to truly overcome the view in Brazil that the U.S. is holding back its most important technology, U.S. policymakers should explore ways to transfer civilian nuclear technology to Brazil. Efforts to reform the U.S. export control system under President Obama may facilitate this happening. Additionally, the United States should seek opportunities to assist Brazil with technology that augments its capabilities in the other strategic areas identified in the END: space and cyber. So doing could create the bilateral security relationship both sides desire and contribute to enhanced peace and security in the hemisphere.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

"AG Objectives." The Australia Group. Accessed 27 February 2014. http://www.australiagroup.net/en/objectives.html.

Amorim, Celso. "Hardening Brazil's Soft Power." Project Syndicate. 16 July 2013. http://www.project-syndicate.org/commentary/a-more-robust-defense-policy-for-brazil-by-celso-amorim.

Barletta, Michael. ''The Military Nuclear Program in Brazil.'' Center for International Security and Arms Control. Stanford University. August 1997. http://cisac.stanford.edu/publications/military_program_in_brazil_the.

Bitencourt, Luis. "The Problems of Defence Industrialization for Developing States." in *Arms and Technology Transfers: Security and Economic Considerations Among Importing and Exporting States,* edited by Sverre Lodgaard and Robert L. Pfaltzgraff. Geneva: United Nations Institute for Disarmament Research, and Institute for Foreign Policy Analysis, United Nations, 1995

Brands, Hal. *Dilemmas of Brazilian Grand Strategy.* Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2010.

Brazil-U.S. Business Council. "The U.S.-Brazil Defense Partnership: Moving Toward Closer Cooperation." Washington, DC: U.S. Chamber of Commerce, 2013. http://www.brazilcouncil.org/sites/default/files/BUSBC_DefenseReport.PDF.

Bruneau, Thomas. "NS3578: Society, Politics, and Security in Contemporary Brazil." Class lectures, Naval Postgraduate School, Monterey, CA, summer 2013.

———. "NS3079: Directed Study: Brazilian Defense and Nuclear Policy." Class discussion, Naval Postgraduate School, Monterey, CA, winter 2014.

Brzoska, Michael. "Spread of Conventional Weapons Production Technology." In *Arms and Technology Transfers: Security and Economic Considerations Among Importing and Exporting States,* edited by Sverre Lodgaard and Robert L. Pfaltzgraff. Geneva: United Nations Institute for Disarmament Research, and Institute for Foreign Policy Analysis, United Nations, 1995.

Bureau of Industry and Security. "Commerce Control List Overview and the Country Chart." October 2013. http://www.bis.doc.gov/index.php/forms-documents/doc_download/14-commerce-country-chart.

———. “The Commerce Control List.” October 2013. http://www.bis.doc.gov/index.php/forms-documents/doc_download/750-774

Cardamone, Thomas. “Arms Sales to Latin America.” *Foreign Policy In Focus* 2, no. 53 (1997). http://fpif.org/arms_sales_to_latin_america/.

“Chapter Eight: Latin America and the Caribbean.” *The Military Balance* 113, no.1 (2013): 415–476. http://dx.doi.org/10.1080/04597222.2013.757004.

Committee on Science, Engineering. *Finding Common Ground: U.S. Export Controls in a Changed Global Environment*. Washington, DC: National Academy Press, 1991.

Council on Foreign Relations. "Global Brazil and U.S.-Brazil Relations." July 2011. http://www.cfr.org/brazil/global-brazil-us-brazil-relations/p25407?cid=emc-BrazilTF_pressrelease-taskforce-07_13_11.

Colitt, Raymond and Arnaldo Galvao. “Saab Wins $4.5 Billion Brazil Order as Spat Hurts Boeing.” *Bloomberg News*. 19 December 2013. http://www.bloomberg.com/news/2013-12-18/brazil-will-decide-today-on-4-billion-jet-fighter-contract.html.

Crandall, Russell, and Britta Crandall. “Brazil: Ally or Rival?” In *The United States and Latin America after the Cold War.* New York: Cambridge University Press, 2008.

Davis, Sonny B. “Brazil-United States Military Relations in the Early Post-World War II Era.” *Diálogos* 6, no. 1 (2002): 13–29. http://www.uem.br/dialogos/index.php?journal=ojs&page=article&op=view&path[]=233.

Defense Institute of Security Assistance Management. *The Management of Security Cooperation.* 32nd ed. January 2013. http://www.disam.dsca.mil/documents/greenbook/green_book_complete_32nd_edition.pdf.

Defense Security Cooperation Agency. *DSCA Manual 5105.38-M: Security Assistance Management Manual.* 2012. http://www.samm.dsca.mil/listing/esamm.

———. “Foreign Military Sales: Frequently Asked Questions.” Accessed 22 February 2014. http://www.dsca.mil/sites/default/files/fms_faq2_0.pdf.

———. “Security Assistance” Accessed 22 February 2014. https://acc.dau.mil/CommunityBrowser.aspx?id=32437

Defense Technology Security Administration. *DTSA Strategic Plan 2013*. http://www.dtsa.mil/Documents/DTSA_Strat_Plan.pdf.

Department of Defense. *International Transfers of Technology, Articles, and Services*. DoDI 2040.02. Washington, DC: Department of Defense, 2008. http://www.dtic.mil/whs/directives/corres/pdf/204002p.pdf.

———. *Quadrennial Defense Review.* Washington, DC: Department of Defense, 2010.

Department of State. "Defense Trade Controls Overview." http://pmddtc.state.gov/reports/documents/defense_trade_overview_2006.pdf.

Diehl, Sarah, and Eduardo Fujii. "Brazil's New National Defense Strategy Calls for Strategic Nuclear Developments." Nuclear Threat Initiative. 30 October 2009. http://www.nti.org/analysis/articles/brazils-new-defense-strategy/.

Downes, E. Richard. "Trust, Engagement, and Technology Transfer: Underpinnings for U.S.-Brazil Defense Cooperation." Strategic Forum No. 279. Washington, DC: National Defense University, 2012. www.ndu.edu/press/lib/pdf/StrForum/SF-279.pdf.

Fishman, Andrew, and Max Manwaring. "Brazil's Security Strategy and Defense Doctrine." 3 March 2011. Strategic Studies Institute. http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=1049.

Ferguson, Ian and Paul Kerr. *The U.S. Export Control System and the President's Reform Initiative*. CRS Report R41916. Washington, DC: Library of Congress, Congressional Research Service, 2013.

Franck, Raymond, Ira Lewis, and Bernard Udis. *Impact of Export Control and Technology Transfer Regimes: International Perspectives.* Acquisition Research Sponsored Report Series NPS-AM-12-001. Monterey, CA: Naval Postgraduate School, 2012. http://hdl.handle.net/10945/33844.

Gehl Sampath, Padmashree and Pedro Roffe. *Unpacking the International Technology Transfer Debate: FiftyYears and Beyond.* Issue Paper 36. Geneva: International Centre for Trade and Sustainable Development, 2012. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2268529.

Grimett, Richard and Paul Kerr. *Conventional Arms Transfers to Developing Nations, 2004–2011*. CRS Report R42678. Washington, DC: Library of Congress, Congressional Research Service, 2012.

Gruselle, Bruno and Perrine Le Meur. *Technology transfers and the Arms Trade Treaty—Issues and Perspectives*. No. 02/2012. Paris: Fondation pour la Recherche Stratégique, 2012. http://www.frstrategie.org/barreFRS/publications/rd/2012/RD_201202.pdf.

Guedes da Costa, Thomaz. *Grand Strategy for Assertiveness: International Security and U.S.-Brazil Relations*. Miami: Center for Hemispheric Policy, University of Miami. 2010. https://umshare.miami.edu/web/wda/hemisphericpolicy/Task_Force_Papers/Costa-Grand_Strategy_for_Assertiveness.pdf.

Hakim, Peter. "Brazil and the US Security Agenda." *Política Externa* 20, no. 3 (February 2012): 125–132. http://www.thedialogue.org/uploads/Peter/BrazilandtheUSSecurityAgenda_PoliticaExterna_English.pdf.

———. "Inter-American Discord: Brazil and the United States." *IPEA Boletim de Economia e Política Internacional* (October 2012): 89–98. http://www.thedialogue.org/page.cfm?pageID=32&pubID=3115.

———. "The Reluctant Partner." *Foreign Affairs* 83, no. 1 (2004): 114–123. http://www.jstor.org/stable/20033833.

Hirst, Monica, and Andrew Hurrell. *The United States and Brazil: A Long Road of Unmet Expectations.* New York: Routledge, 2005.

Hulse, Janie. "Brazilian Military's White Paper to Guide Future Defense Priorities." Diálogo. 17 June 2011. http://dialogo-americas.com/en_GB/articles/rmisa/features/regional_news/2011/06/17/aa-brazil-white-paper.

Jervis, Robert. "Hypotheses on Misperception." *World Politics* 20, no. 3 (April 1968): 454–479.

———. 1976. *Perception and Misperception in International Politics*. Princeton, NJ: Princeton University Press.

Kapstein, Ethan B. "The Brazilian Defense Industry and the International System," *Political Science Quarterly* 105, no. 4 (Winter, 1990–1991): 579–596. http://www.jstor.org/stable/2150936.

Leuchars, Chris. "Brazil and the league council crisis of 1926." *Diplomacy & Statecraft* 12, no. 4 (2001): 123–142. http://dx.doi.org/10.1080/09592290108406229.

Lula Da Silva, Luiz Inacio, Nelson Jobim, and Roberto Mangabeira Unger. *National Defense Strategy* (2008). http://www.defesa.gov.br/projetosweb/estrategia/arquivos/estrategia_defesa_nacional_ingles.pdf.

Meiman, Kellie, and David Rothkopf. “The United States and Brazil: Two perspectives on dealing with partnership and rivalry.” Center for American Progress. March 2009. http://www.americanprogress.org/wp-content/uploads/issues/2009/03/pdf/brazil.pdf.

Mendelson Forman, Johanna. “Recommendations for a New Administration:Building a Dynamic U.S.-Brazil Partnership.” *CSIS Hemisphere Focus.* Washington, DC: Center For Strategic and International Studies, 2012. https://csis.org/files/publication/121219_JMForman_Brazil_HemFocus_0.pdf.

Ministério de Defesa. “Câmara aprova Política Nacional de Defesa, Estratégia Nacional de Defesa e Livro Branco.” 12 September 2013. http://www.defesa.gov.br/index.php/ultimas-noticias/8801-12-09-2013-defesa-camara-aprova-politica-nacional-de-defesa-estrategia-nacional-de-defesa-e-livro-branco.

———. *Livro Branco de Defesa Nacional* (2012). http://www.defesa.gov.br/arquivos/2012/mes07/lbdn.pdf.

Missile Technology Control Regime. “Introduction.” Accessed 27 February 2014. http://www.mtcr.info/english/index.html.

Mora, Frank O. and Antonio L. Pala. “US Arms Transfer Policy for Latin America.” *Airpower Journal* 13, no. 1 (Spring 1999). http://www.airpower.maxwell.af.mil/airchronicles/apj/apj99/spr99/mora.html.

Nuclear Suppliers Group. “Guidelines.” Accessed 27 February 2014. http://www.nuclearsuppliersgroup.org/A_test/01-eng/09-guide.php?%20button=9.

Piccone, Ted. “U.S. and Brazil: Together and Apart.” The National Interest. 9 April 2012. http://nationalinterest.org/commentary/us-brazil-together-apart-6746.

Rapoza, Kenneth. "Brazil Chooses Saab Fighter Over F-18 Super Hornet.” Forbes. 19 December 2013. http://www.forbes.com/sites/kenrapoza/2013/12/19/brazil-chooses-saab-fighter-over-f-18-super-hornet/.

Rohter, Larry. *Brazil on the Rise: The Story of a Country Transformed.* New York, NY: Palgrave Macmillan, 2010.

Sachs, Jeffrey D. “Globalization and Patterns of Development.” *Weltwirtschaftliches Archiv.* 136, no. 4 (December 2000): 579–600. http://www.relooney.fatcow.com/3040_x416.pdf.

Santos Vieira de Jesus, Diego. “The Brazilian Way.” *The Nonproliferation Review* 17, no. 3 (October 2010): 551–67. DOI: 10.1080/10736700.2010.517003.

Smith, Matthew. “IHS Jane’s Navigating the Emerging Markets: Brazil.” IHS Jane’s Defence Industry and Markets Intelligence Centre. January 2014. https://janes.ihs.com.libproxy.nps.edu/ExternalItems/Janes/images/binder/jiq/jiq02/data/jiq0095_a.pdf.

Soto, Alonso and Brian Winter. “Saab Wins Brazil Jet Deal after NSA Spying Sours Boeing Bid.” Reuters. 18 December 2013. http://www.reuters.com/article/2013/12/18/us-brazil-jets-idUSBRE9BH11C20131218.

Sotomayor, Arturo C. *U.S.-Latin American Nuclear Relations: From Commitment to Defiance.* PASCC Report No. 2012013. Monterey, CA: Project on Advanced Systems and Concepts for Countering WMD, Naval Postgraduate School, 2012. http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?lng=en&id=156338.

———. “Brazil and Mexico in the Nonproliferation Regime: Common Structures and Divergent Trajectories in Latin America.” *The Nonproliferation Review*. Vol. 20, Iss. 1, (2013): 81-105.

———. “Latin America’s Middle Powers in the United Nations: Brazil and Mexico in Comparative Perspective,” *Journal of International Peacekeeping* 16, no. 3 (June 2009): 364-378.

Squassoni, Sharon, and David Fite. ‘‘Brazil’s Nuclear History.’’ Arms Control Association. October 2005. http://www.armscontrol.org/act/2005_10/Oct-Brazil-History.

Stewart, Patrick. “Brazil Seeking Security.” The National Interest. 7 July 2010. http://nationalinterest.org/commentary/brazil-seeking-security-3622.

Sundberg, Edward D. “Arms Sales to Latin America.” Master’s thesis, Naval Postgraduate School, 2003. http://hdl.handle.net/10945/6137.

Tollefson, Scott. *Brazil, The United States, and The Missile Technology Control Regime.* Technical report NPS-56-90-006. Monterey, CA: Naval Postgraduate School, 1990. http://hdl.handle.net/10945/28873.

Trinkunas, Harold and Thomas Bruneau. *U.S.-Brazil Workshop on Global and Regional Security.* PASCC Report Number 2012 018. Monterey, CA: Project on Advanced Systems and Concepts for Countering WMD, Naval Postgraduate School, 2012. www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA574567.

Wassenaar Arrangement. “How the WA Works.” Accessed 27 February 2014. http://www.wassenaar.org/introduction/index.html.

———. “Introduction.” Accessed 27 February 2014. http://www.wassenaar.org/introduction/index.html.

———. “Overview.” Accessed 27 February 2014. http://www.wassenaar.org/introduction/index.html.

White House. “Conventional Arms Transfer Policy.” In *Presidential Directive/NSC-13*. Washington, DC: White House, May 1977. http://www.jimmycarterlibrary.gov/documents/pddirectives/pd13.pdf.

———. “Conventional Arms Transfer Policy.” In *Presidential Decision Directive/NSC-34.* Washington, DC: White House, February 1995. http://www.disam.dsca.mil/pubs/USG/pressrelease/ARMSTRAN95.htm.

———. “Fact Sheet: U.S.-Brazil Defense Cooperation.” 9 April 2012. http://www.whitehouse.gov/the-press-office/2012/04/09/fact-sheet-us-brazil-defense-cooperation.

———. *National Security Strategy.* Washington, DC: White House, 2010.

———. *National Security Strategy.* Washington, DC: White House, 1991. http://nssarchive.us/NSSR/1991.pdf.

———. “U.S. Policy on Arms Transfers to Latin America.” Statement by the Press Secretary. August 1997. http://www.disam.dsca.mil/pubs/USG/pressrelease/LATAMCAT.htm.

Winter, Brian. “Exclusive: Brazil Closer to Boeing on Jets Deal after Biden Visit.” Reuters. 4 June 2013. http://www.reuters.com/article/2013/06/04/us-brazil-jets-idUSBRE9531AC20130604.